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SMITH ELY JELLIFFE, A.M., M.D., PH.D.

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ORIGINAL ARTICLES.

A PLEA FOR THE SIMPLER MEDICINAL TREATMENT OF CHRONIC NERVOUS DISEASES.[1]

BY JOSEPH COLLINS, M.D.,
OF NEW YORK;
PROFESSOR OF NERVOUS AND MENTAL DISEASES IN THE POST-GRADUATE MEDICAL SCHOOL; VISITING PHYSICIAN TO THE CITY HOSPITAL.

THE chief objects of this paper are to enter a protest against the indiscriminate and excessive use of drugs in the treatment of chronic nervous disease, and to make a plea for a simpler and a more rational mode of treatment. It may strike my auditors that such a plea comes with poor grace from one who has written a volume on the treatment of nervous diseases, but my hope is that reading the book would dispel such idea.

One can not have been a neurologist long without becoming aware that the sufferer from chronic nervous disease is a target for the medicine vendor; nor can it be denied that the rank and file of physicians, when called upon to treat even some of the simpler and curable nervous diseases, depend mainly upon medicines to effect a cure. One drug after another that has been mentioned in the text-books or vaunted by pharmaceutical specialists is tried until the patient, weary of drugging and despairing of benefit, decides to consult another practitioner. The next physician adopts a similar procedure, until finally the patient's faith in doctors and their efforts is completely shattered and he falls into the hands of unscrupulous persons, such as quacks or those who depend upon supernatural methods and modes of treatment, the understanding of which transcends the human mind, faith curists, Christian Scientists, and osteopaths. Patients who have a custom of securing copies of their prescriptions and keeping them are witnesses of the truth of this statement. It is not infrequent in my experience to be handed a bundle of prescriptions, with the statement that this and that has been taken for such and such a length of time. The amount of drugging that a patient with a chronic disorder of the nervous system, such as locomotor ataxia, progressive muscular atrophy, epilepsy, neurasthenia, or paralysis agitans, is often subjected to is appalling.

The patient with tabes consults a physician and gives a history of luetic infection twenty years previous, let us say. Inquiry reveals that he received at that time what is considered to be appropriate treatment and for an adequate length of time to overcome the infection. In face of the most widely-accepted teaching that tabes is a parasyphilitic disease, that is, a disease following in the wake of syphilis after the virus has ceased to exist as such, and therefore after it can produce the inflammatory and degenerative processes which are characteristic of it, and occurring after a period when the virus and its pathological reactions can be expected to respond to antisyphilitic medication, the patient is put through a more or less elaborate plan of treatment, consisting mainly in the administration of mercury and iodide of potassium, fortified in many instances by a cure at Hot Springs or some other watering-place which has acquired a reputation in the cure of syphilitic disease. Such procedure not infrequently reduces the patient with beginning tabes to an anemic state, causes loss of flesh and diminution of vitality, all of which are favorable to the more rapid decay of the peripheral sensory neuron, which constitutes the morbid anatomy of this disease. If the case be one of genuine tabes, no benefit whatsoever results, and in my experience from a careful study of many of these cases, made in an unprejudiced manner, injury which can not be repaired or compensated for often follows. It is no doubt true that in some instances the early phenomena of tabes are produced by syphilitic disease of the meninges and of the cord itself. These cases are not only benefited, but often they are cured by such treatment. It is, however, no exaggeration to say that such cases are extremely rare. Among 150 patients with genuine tabes I have met only two. Careful examination and continued observation are sufficient to differentiate these cases of pseudotabes.

After the patient with genuine locomotor ataxia has been put through some such course of treatment as that just spoken of, he is given nitrate of silver in large doses and for a prolonged time. If he be fortunate enough to escape the deformity which this drug produces, ergot, arsenic, belladonna, and innumerable other drugs which in truth have no *rationale* upon which to base their administration, are tried. Their only claim to recognition is that they have been enumerated in the books as serviceable in combating this disease. After their uselessness is proven to the satisfaction of him who gives them and to the distress of him who takes them, the patient is given a course of aluminium, chloride of gold, amyl nitrite, cannabis indica, arsenic, and these doing him no good, he shifts to another doctor who tries them all anew, or knowing of their previous use decides to give strychnine, phosphorus, physostigma, nitrohydrochloric acid, or others of the score of drugs that have been recommended since Duchenne first described the disease. Meanwhile the disease makes progress and if the patient has not already become discouraged, he is fast becoming so and is a ready victim for the fakirs, or he joins a locomotor-ataxia league whose object it is to keep members out of the hands of the physicians and to promote the discovery of a cure. If he be a man of means and of solicitous friends, he has probably not escaped the confident shoemaker who restores him to life's activities by means of properly adjusted footgear furnished him in exchange for from $500 to $2,500, depending upon his resources and his credulity.

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[1] Read at the June meeting of the Cortland County Medical Society, 1902.

Confronted with such a state of affairs and realizing that tabes is a progressive disease which has never been permanently stayed by medication, does it not seem much more praiseworthy to say to intelligent men or women suffering from locomotor ataxia that they are afflicted with a disorder which will eventually incapacitate them, but that in the meantime a number of years of activity will be vouchsafed to them and that, by pursuing an appropriate line of treatment and by the observance of the rules of hygiene, this may be so extended that it will cover a period one-half or two-thirds as great as the active life of their less unfortunate fellowmen? Meanwhile, they may go on living a life of usefulness to themselves, providing for their families and laying up store for the days of their invalidism. In the meantime, the earnest physician will be seeking to discover the curative lymph or other product of Nature or art which is to cope with the disease and at intervals he will be inculcating into the youth of families of whom he is the trusted counsel the wisdom of avoiding those experiences out of which the disease arises.

This is surely a more exalted position to take than to go on threshing out straw that has been beaten beyond sign of recognition in the fatuous hope of getting grain.

It may be that some of our patients are of such disposition that a frank discussion of the nature and course of the disease would act deleteriously upon them, and that they have neither the intelligence nor the philosophy to receive such communication and shape their lives accordingly. In my own experience, they constitute the exception and not the rule. There are but few instances in which if one takes the pains to explain in detail the nature and outcome of the disease, with full emphasis upon the fact that non-medicinal measures, such as massage, suspension, electricity, hydriatics, dietary, and conformation to the most approved hygienic measures, are very powerful therapeutic agencies, and the best at our command to stay the course of the disease, that the patient will betake himself from such a counselor to one who is optimistic regarding the effects of drug-therapy. I would not, of course, be understood to say that none of the drugs just mentioned is not of service in delaying the course of the disease. I appreciate fully that any one of them whose action it is to expedite the processes that are at the basis of constructive metabolism may be of service, if such service be needed. My contention here is that it has been amply demonstrated that nitrate of silver, chloride of aluminium, iodide of potassium, and so on to the end of the tiresome list, are wholly impotent in delaying or checking the morbid processes constituting tabes, and that we are not justified in submitting our patients to a plan of medication which our predecessors, not to say ourselves, have shown to be useless. The same zeal and energy directed toward experimentation along the lines of research which have already revealed measures capable of coping with diseases which until the discovery of an antidote to the poison that causes them were fatal, gives far more likelihood of reward than groping along aimlessly and hopelessly in pathways that lead always to the same end. As neurologists, we have much to answer for in failing to strike out vigorously and with determination into untrodden fields of therapeutic experimentation in our dealings with this disease.

If it be thought that I have selected the most glaring example of the drugging abuse, let us dwell for a moment on the unfortunate epileptic. It is almost impossible to enumerate the drugs that have been recommended in this disease. In Brunton's "Therapeutics," no less than forty-two remedies are mentioned as utilizable in its treatment, and still this neurosis remains as unamenable to drug-therapy as it was more than half a century ago when Laycock showed the capacity which the salts of bromine possess to cause diminution in frequency and severity of the epileptic attacks. The progress that has been made in the treatment of epilepsy in the meantime has been the recognition that genuine, idiopathic or congenital epilepsy (in contradistinction to symptomatic epilepsy) is a neurosis of degeneracy, a defect of harmonious evolutionary development that may hark back far beyond the immediate ancestry, and that there are two indications to be fulfilled in treating this neurosis. First, to put the system in such condition that excitants of epileptic attacks, such as auto-intoxications from the gastro-intestinal tract, from fatigue, or from poisonous products which should be eliminated through the emunctories, will not develop within the body, and to guard against those experiences which we have learned empirically often precipitate attacks. Second, to so influence neuromotor irritability in a sedative way that discharge of energy in the shape of explosion will be less likely to occur. Fulfilling of these requirements constitutes to-day the best treatment of epilepsy. In accordance with this treatment, it may be said that better results in the treatment of this neurosis are obtained in institutions where these indications are fulfilled and where indiscriminate administration of drugs that have been recommended as useful in epilepsy is entirely abandoned, than anyone has been able to offer from all other plans of treatment. It is not my purpose here to enumerate the details of the treatment of epilepsy that will meet the requirements of the two aforementioned indications. I have done so elsewhere.[1] My desire is rather to emphasize the fact that, so long as we continue to treat epilepsy as our predecessors did, we can expect only the results obtained by them. Such results should not satisfy us and they do not satisfy our patients. The obstacles that interfere with the adoption of a plan of treatment such as that I have just sketched are that it requires great attention to detail on the part of the physician and constant daily watchfulness and coöperation of the parents of the invalid, or other persons in charge of him, which must continue during the life of the patient. It is much easier to write a prescription for one of the bromide salts, or a combination of them, and to give more or less perfunctory directions regarding the diet and the necessity of regulating the bowels, than it is to explain clearly and explicitly that the unfortunate possessor of this neurosis is handicapped with a condition which is as much a natural part of him as is the color of his hair, or the shape of his hand, or the conformation of his palate, and that he can no more rid himself of it by taking medicines that he can rid himself of any of the attributes just mentioned. His life may, however, be shaped for him in such a way, depending, naturally, upon the severity of his neurosis, that its usefulness may not be very materially curtailed. In fact, the epileptic endowment may be so slight, or so capable of being compensated for, that his sphere of usefulness may not be contracted at all. To accomplish this, to gain these ends, it will be necessary to consider the bringing-up of the epileptic child, its education, and human associations, choice of an occupation or profession, and the assumption of duties toward himself and toward society. This can be done only when we are dealing with parents who have the intelligence to discuss such questions understandingly. In dealing with others, our aim should be to secure the entrance of the unfortunate epileptic to an institution where these conditions can be fulfilled. As a matter of fact the real progress that has been made in the treatment of epilepsy in the last quarter of a century consists in the recognition of the fact that epileptics must be colonized, or institutionized, or call it what one may.

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[1] The Treatment of Nervous Diseases, Wm. Wood & Co., New York, Publishers.

The difficult problem in dealing with epileptics and their parents, even of the so-called better classes, is made more difficult by their failure to understand that the child with epilepsy can not be brought up in the same way as the normal child, and that eternal vigilance is the price that they must pay for comparative freedom from epileptic outbreaks, and for the harmonious development of those mental qualities which shall allow him to assume the ordinary responsibilities of life (excluding matrimony). It is really not sufficient to say that the child shall have red meat once a day or once a week, varying with the belief on the part of the individual physician as to the relationship of meat-eating to the frequency of epileptic attacks; that the child shall eat slowly and never to excess; that sodium chloride shall be largely excluded from the foodstuffs; that protracted fatigue and sweets must be avoided. Conformation to such instructions will be followed, undoubtedly, by beneficial results, but the best results can be obtained only when the mode of bringing up and of living conforms to that which is adapted to the epileptic child. And I repeat that such mode of life is not the one which is adapted to the normal child. This, with the administration of the salts of bromine, is all that we can to-day offer to the patient with epilepsy. That it is not adequate need not be said, nor should it be construed as an expression of conviction on my part that epilepsy should not be treated vigorously. My feeling in this matter can best be expressed by a quotation from my book: "I know of no disease of comparable frequency and severity in which treatment properly planned and carried out is productive of better results."

The physician who depends upon the administration of drugs alone in the treatment of epilepsy will be disappointed, and still I am inclined to believe that most of us do, if I may judge from the patients that come under my observation in dispensary and private practice. Drugs, meaning by that the bromides, are powerful adjuvants, but I doubt if there be any cases on record in which they have sufficed to produce a cure. There are, no doubt, cases in which the epileptic phenomena have disappeared while under medication and never returned. But there are not a few cases of epilepsy in which the ordinary epileptic manifestations, namely, the convulsions, disappear without any medication.

Neurasthenia, or whatever that word may convey to the one who uses it or hears it, is a disease that offers itself as a tempting field in which to display pharmaceutical erudition. I have often thought that it would be a most valuable contribution to the knowledge of this disorder if we could obtain the histories of ten neurasthenics from each one of a thousand physicians, general practitioners, which should set forth attributed and attributable causes, the clinical delineation, the evidences of somatic disorder, the mental features, and, most important of all, the outcome, *i. e.*, the course of the disease. Such a plan would give us statistics of ten thousand patients. We might not learn much that was new of its causation or of its clinical delineation. We would, however, learn a most important lesson in therapeutics, and that is whether or not the disorder is materially influenced by the use of drugs alone, for it seems to me safe to assume that a large proportion of such cases would have been so treated. Neurasthenia is a condition of functional disorder of the various systems of the body, especially of the sympathetic nervous system, the natural tendency of which is to recover spontaneously when it is not founded in a congenital or early acquired disequilibrium of neural energy or vitality, or upon a hypochondriacal basis. If the conditions under which the neurosis develops be removed, first attacks of neurasthenia occurring before middle adult life disappear, as a rule, in from six to eighteen months. That this period can be abbreviated by drug-therapy alone there can be, I believe, no doubt. That it is enormously abbreviated by drug-therapy combined with appropriate non-medicinal treatment is within the experience of every one who has had much to do with neurasthenia. In my own experience, these non-medicinal measures, consisting of rest, exercise, change of environment, isolation, hydriatics, massage, diet, avoidance of deleterious indulgences, such as stimulants and narcotics, and conformation to hygienic rules, are so effectual and so far superior in their results to drug-therapy that I rarely use drugs in the treatment of the cases that I see, except to fulfil some pointed indication, such as to overcome intestinal fermentation, to counteract anemia or other states of disordered blood, to eliminate poisonous matters from the urinary tract, or to temporarily whip up a fatigued cardiovascular apparatus, or, finally, to dispel for a time some symptom that is making a profound impression upon the patient's *morale.* I need scarcely add, I think, that the neurologists who are agreed upon these principles of treatment, if they be able to control their patients, or, better, if the patients are able to conform to the requirements, rarely fail to effect a cure. I am not quite sure, however, that practitioners in general are particularly cognizant of the fact that drugs play such a subsidiary rôle in effecting the cure. From intercourse with the best type of general practitioners as I encounter them in the Post-Graduate Medical School of New York, I venture to say that they depend too largely upon drugs and that the commonest prescription for the neurasthenic is a mixture that contains the bromides and a prescription containing strychnine. It is often necessary to give the bromides for a time in neurasthenia to compass the end just mentioned. But its prolonged or continued use is injurious and very much to be deprecated. As for strychnine, I never give it by the mouth, for experience has taught me that such method of administering it is most uncertain, whereas given hypodermatically its effect as a symptom medicine, *i. e.,* a medicine given to produce symptoms, can be determined with mathematical accuracy. So far as giving medicines as a "general tonic" is concerned, I have long since ceased to do it, not only in neurasthenia, but in every other disease.

It is not necessary to dwell further in detail on what I consider an abuse of drugs in the treatment of nervous diseases. If it were, I should need only to relate the experience of patients with paralysis agitans, sciatica, or progressive muscular atrophy. In regard to the first-mentioned of these diseases, there is complete unanimity of opinion that the less drugging the patient is subjected to, the slower is the progress of the disease and the greater is the comfort of the patient. Still, I do not feel at all sure that the experience of such patients corroborates the claim that our practice conforms to such teaching. One may say that when a patient with paralysis agitans consults a physician he expects to be treated, and that treatment is synonymous to him with the administration of medicine. In that, however, I do not concur. Treatment for the patient with paralysis agitans means conformation to a mode of life that will contribute most to his material comforts, in which medicine plays no part, save it be the occasional administration of a hypnotic or a few doses of hyoscine, to cause motor sedation. Study of the data to hand concerning the causation of paralysis agitans seems to show that it is a disease which is the reward of virtue, for rarely do any of its victims give a history of indulgence in any of the vices or show contamination with any of the ordinary injurious experiences of life, unless it be hard work. And to correct the latter no medicine has as yet been discovered.

If the cases that are now included under the designation of sciatica were carefully studied with a view to determining their causes and differentiating the structural conditions of sheath and nerve upon which they are dependent, and if our therapeutic efforts were directed entirely to overcoming the causes, the treatment of sciatica would not be the thorn in the physician's soul that it is to-day. But what is the truth about the treatment of sciatica? It is that the patient consults one physician whose belief is that the majority of sciaticas are dependent upon rheumatism, an expression of the rheumatic dyscrasia manifested through this colossal nerve, and the salicylates and iodide are given; another man believes that most cases are dependent upon auto-intoxications from the intestinal tract, the outgrowth of constipation and a distended large intestine, and his therapeutic ammunition is directed against that; while a third may be of the opinion that exposure to cold, refrigeration, is the commonest cause, and that the neuralgic condition should be combated by a medicine that benumbs the sensory nerves, such as aconitia, gelsemium, or stramonium, given until its physiological action appears. The fact that sciatica is invariably a symptom and that the only specific medication, aside from the adoption of measures to overcome the condition of which it is a symptom, is the administration of morphine to relieve the patient's suffering, is seemingly lost sight of. It would seem that treatment is often instituted on the plan that more birds are brought down with a volley of shot than with a rifle, for in no other way can we explain the elaborate and incongruous medication with which the student is confronted when he reads the chapter on the treatment of sciatica in our text-books. That such treatment often succeeds in bringing about cure is no argument in favor of its continuance, for the results are never so satisfactory as they are when the plan of procedure already spoken of is pursued. The gratification which follows the cure of disease, such as sciatica, in the way that I have mentioned is comparable to that which the surgeon experiences when he removes a diseased appendix or a tumor of a viscus which threatens the patient's life.

In conclusion, I wish to say that my efforts will defeat the desired end if anything that I have written be construed as an effort to shake the faith of the patient, or disorder the confidence of the physician in the value of drugs as means of combating disease. Such an inference would be diametrically opposed to my own belief and to my practice based thereon. It is the abuse of drugs that I inveigh against, my object being to avoid the disrepute thereby engendered to our calling.

We must educate ourselves, as well as those who look for guidance, to a full realization of the fact that drug-administration is not always or perhaps often the most important factor in bringing about the cure of disease. It is also, I venture to suggest, a part of our duty to do what we can toward eradicating drug-fetichism as it exists to-day among the laity. Nowadays nearly every well-regulated family have a drug-closet filled with pills and potions to which they repair on the appearance of the most trivial disorder with a faith akin to that with which the pious pilgrim goes to Lourdes. Instead of correcting their dietetic errors and ceasing to transgress the laws of Hygeia, they keep on, because it is their pleasure, deluding themselves with the notion that Nature exacts no other penalties for infringement upon its laws than swallowing a few doses of medicine.

It need scarcely be said that medicine taken in this way can only bring it into disrepute, and finally it dawns upon the drug-bibber that his faith is gone. Then for him drugs are useless and osteopathy, Eddyism, or some other cult is the thing. In reality the drug habitué and we who give drugs without discrimination are in a measure responsible for the reincarnation at the present time of the neoplatonistic sphinx which the irreverent and truthless call Christian Science. The real reason, however, for the prevalence of this and other cults is the craving for the mystic and the supernatural which seems to be man's birthright and which has shown itself about once a generation from the time of Plato to the present day. In one generation it is called Hahnemannism, in another Berkeleyism, Perkinism, Eddyism, or what not. It is the same form of systematized delusion with changed delineation effected by the times when it has its outbreak. At the bottom of it all is the revival of the primitive thought dating from the period when the Neoplatonists held that there exists within the body a something, a soul, which is capable of influencing the body without the mediation of bodily structure. Like all other mental epidemics, if left to itself it subsides slowly and in time fully, but, it always breaks out again, happily in a new generation. This will continue to be the history of these strange outbreaks so long as man's understanding of himself, whence he came and whither he goeth, remains as it is now.

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ASEPSIS AND ANTISEPSIS IN THEIR RELATION TO MODERN SURGICAL TECHNIC.[1]

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IN the beginning I wish it understood that I am attempting to give you only well-demonstrated facts and am leaving all extra words of explanation and detail to be obtained from other sources. Furthermore, if in reading seemingly contradictory statements in regard to certain agents or methods employed should be found, do not be discouraged, for closer comparison will prove that while one method or agent is exalted the other is seldom, if ever, said to be wrong. For all men do not have exactly the same ideas in regard to all things, consequently each may express himself a little differently, but as he believes to be best. These few notes which I am about to give are a general summing up of facts demonstrated beyond question by the experience of the profession as a whole.

First, it will be necessary to explain what is meant by the terms asepsis and antisepsis, and I think this best accomplished by a comparison with the opposition, namely, putrefaction.

Putrefaction is a form of fermentation accompanied by the development of offensive odors. And fermentation may be defined as a new arrangement of the elements of an original compound with the consequent formation of a new product. For either to take place there must be present water, oxygen, heat and micro-organisms which may be said to exist everywhere, except possibly in mid-ocean and above the snow-line.

Sepsis is only another name for putrefaction. Asepsis literally means without sepsis or a condition of non-putrefaction, but the generally-accepted definition is that it is not only a condition of non-putrefaction, but that it also denotes absence of all septic material or pathogenic organisms, the most important of which are the cocci and bacilli. For the characteristics of these micro-organisms I will refer you to the department of pathology.

An antiseptic is an agent that is opposed to the causes of sepsis and is employed whenever surgical cleanliness is desired. To be surgically clean is to be free from sepsis and its causes; therefore antisepsis may be defined as a condition directly opposed to that of sepsis. So, to treat a wound aseptically would be to exclude from it all micro-organisms that tend to produce sepsis; while the antiseptic treatment would be not only this exclusion of micro-organisms, but the introduction of some agent that would tend to destroy them if present.

Aseptic and antiseptic surgery is based upon the principle first enunciated by Sir Joseph Lister, namely, that upon all objects in the external world septic dust is present and the introduction of any of this dust into a wound must be avoided. The stage of controversy as to the benefits of aseptic and antiseptic surgery has long passed, and a comparison of statistics of operations in pre-Listerian days with those of the last quarter century is convincing beyond a doubt. Sufficient to say that compound fractures in those days were considered among the most dangerous accidents, while now they are thought to be scarcely more serious than simple ones, and the mortality of all major operations is reduced to a minimum.

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[1] Remarks made before the third-year students in the College of Physicians and Surgeons, Boston, Mass., 1901.

To secure and maintain surgical cleanliness in operative work either the aseptic or the antiseptic method may be employed. In the aseptic method heat or some chemical germicide, or both, is used to cleanse the instruments, field of operation, hands of surgeon and assistants, the chemical germicide being washed off with plain sterile water. After the incision is made no chemical germicide is used, the wound being sponged with gauze sterilized by heat; if irrigation be needed plain sterile water is used and the wound is dressed with gauze sterilized by heat. The efforts of the surgeon are simply to prevent the introduction of bacteria into the wound and for this reason the aseptic method is applicable only to non-infected areas.

All hemorrhage must be stopped by ligature or otherwise before the wound is closed. This may be done with Halsted's stitch, which avoids the danger of carrying the skin staphylococcus into the wound in passing the suture. The dressing should be applied with firm pressure to obliterate all cavities. When irrigation has not been practised and the wound is dressed with gauze sterilized by heat it is termed the "dry aseptic method."

In the antiseptic method the same preparations are made as in the aseptic, but during the operation the sponges used are impregnated with some chemical germicide; if irrigation be practised a solution of some chemical germicide is used and the wound is dressed with gauze impregnated with some chemical germicide. In this method the surgeon not only strives to exclude bacteria from the wound, but introduces some agent which will tend to destroy any bacteria if present, and is therefore preferred in infected areas. If no irrigation be practised and if the wound be dressed with dry gauze, it is termed the "dry antiseptic method." Of these two methods the aseptic is the most popular, but it must be understood that whichever method is used must be thorough to be effective.

In many regions strong chemical germicides must not be used for reasons which we will note later; but in badly infected areas it is necessary to employ some germicidal agent for the destruction of bacteria. Thus each method has its indications.

As an antiseptic or germicide the most universally valuable and available is heat. High temperatures are fatal to bacteria. Moist heat is much more effective than dry. Many organisms are destroyed at a temperature below that of boiling, while boiling is said to kill every pathogenic organism that does not form spores. As a practical fact boiling water will, in a few minutes, kill all cocci, most bacilli, and all pathogenic spores, although the spores of anthrax and tetanus are harder to kill than those of other bacteria. It is well that this be kept in mind, for no matter how far one may be from a city this agent of heat is always obtainable. Instruments and dressings may either be boiled or placed in an ordinary stove oven and subjected to sufficient heat to render them surgically clean.

Of the antiseptic drugs or chemical germicides there are a very large number, but I shall attempt to speak of only a very few, of which the most important is corrosive sublimate or bichloride of mercury, as it is often termed. It is used in surgery in the strength of one part of the salt to 1,000, 2,000, 3,000 parts of water, or even weaker solutions are used according to indications. It is sometimes used in badly-infected wounds in the strength of 1-500. While this antiseptic under certain conditions is very powerful, it is not always to be relied upon. Many spores, as those of anthrax, are very resistant to its action. In the presence of hydrogen sulphide it is useless, sulphide of mercury being formed. For this reason it is worthless in the rectum. Neither is it germicidal in fatty tissue, for it fails to attack bacteria that are covered with oil. It is very irritating to the tissues, causing a copious exudation, and it is thought that in many instances the irritated tissues lose to a certain degree their power of resistance. Because of this irritation it should never be used upon serous surfaces like the peritoneum, nor upon the dura, neither should it be used in strong solutions upon mucous membranes. In rare instances it is absorbed and produces poisoning. In spite of its many shortcomings, it is of great value to the surgeon and must frequently be used for cleansing the skin of the patient as well as the hands of surgeon and assistants. Fresh solutions should always be made when needed; a hot solution is much more effective than a cold one. Solutions are very readily made of any desired strength from the tablets containing $7^3/_{10}$ grains of the salt. One tablet of this size dissolved in a pint of water makes a solution of the strength of 1-1,000. The weaker solutions are made, of course, by adding more water.

Ordinarily it is used in the strength of 1-1,000 for disinfecting the skin, 1-2,000 for trivial wounds, 1-5,000 to 1-10,000 for large wounds and vagina and 1-20,000 to 1-40,000 for the urethra. Instruments cannot be placed in solutions of this agent without being stained, corroded and dulled.

Carbolic acid is a germicide of considerable value when used in the strength of 1-20 or 1-40; pus organisms are very readily destroyed by it. Unfortunately, this agent is very irritating to the skin and for this reason its chief use is as an antiseptic medium for sterilized instruments. Like corrosive sublimate it is inert in fatty tissue. Carbolic acid is very readily absorbed and in using it upon the tissues it is well to remember that absorption takes place very readily from the use of weak solutions, but never from the strong acid, because of its caustic action which forms a barrier to absorption.

Creolin, a coal-tar product, is a germicide without irritant or toxic effects; it is less powerful, however, than the two previously mentioned. It is used in an emulsion of the strength of from 1 to 5 per cent. Peroxide of hydrogen is valuable for the destruction of pus cocci. Iodoform is not truly a germicide, but hinders the development of bacteria. It is largely used and is without doubt of great value applied to infected areas. It is frequently used as a dusting powder, and iodoform gauze is employed for drains. There are many other agents used as germicides, with certain merits which I will not now take time to point out.

Let us consider the necessary aseptic and antiseptic precautions in preparing for an operation. First, in the preparation of the instruments; they are best disinfected by boiling in a 1-per-cent. solution of bicarbonate of soda for twenty minutes, then rinsing with a solution of carbolic acid in the strength of 1-20, after which they should be placed in a tray containing a solution of carbolic acid of the same strength. Plain sterile water may be used instead of the carbolic-acid solution. The soda is used in order to prevent rusting. During the operation care should be taken that the instruments are not allowed to come in contact with anything that has not been sterilized, also that they be returned to their appropriate solution after using. After the operation the instruments should be scrubbed with soap and water, boiled and dried. This is as important as disinfection before the operation.

It is always well to have plenty of sterile towels, as they will be useful in many ways. They are best sterilized by heat, yet they may be saturated with a solution of corrosive sublimate and thus form a good protective surrounding for the field of operation.

For sponging I think nearly all surgeons now prefer small pads of sterile or antiseptic gauze to the old marine sponge. These pads are clean and inexpensive; they are made of gauze so folded as to form several thicknesses, the raw edges being folded in and loosely hemmed. These may be sterilized in the same manner as the dressings and are burned after the operation.

Suture material must also be sterile. The different methods of sterilizing it can be easily obtained from any text-book of surgery, though all sutures may be and ordinarily are obtained by the general practitioner thoroughly sterilized and with a little care may be kept so, thus saving much time and labor. However, these should be the product of some reliable laboratory.

The dressings, whatever they are, must be sterile. They are best sterilized by heat, but may be rendered antiseptic by saturation in a solution of some germicidal agent, as corrosive sublimate, carbolic acid, or creolin.

We now come to the preparation of the patient. Whenever possible give the patient a day or two of rest in bed if the operation is to be a major one. A cathartic should be given the night before and an enema the morning of the operation. Emptying the bowels thoroughly will lessen the danger of sepsis. If it be possible, give a general warm bath the day before the operation, and the evening before scrub the entire field of operation and all around it with soap and water, remove all hair by shaving, wash with ether, scrub well with hot corrosive sublimate solution of the strength of 1-1,000, then apply a moist dressing of corrosive sublimate and let it remain until the patient is brought to the operating-table. Upon removing this dressing before the operation, the part should again be cleansed exactly as before and the field of operation surrounded by sterile towels. In emergency cases disinfection can be practised only just previous to the operation, therefore it should be done with great care and the field of operation must be well protected by sterile surroundings.

With the patient ready for the operation, let us see what should be the preparation of the surgeon and his assistants. They should remove their coats, roll up their sleeves to their elbows and put on sterile gowns. The hands and forearms should be thoroughly scrubbed with soap and hot water, the nails should be cut short, cleaned with a knife, and the hands should again be scrubbed, after which they are dipped in hot corrosive sublimate solution of the strength of 1-1,000. They may then be dipped in absolute alcohol and again bathed with the mercurial solution. This process will serve to give the hands proper disinfection if it be carried out thoroughly. Of course, there are many other methods. After the hands are once disinfected care must be taken to touch nothing that has not been sterilized. In making and cooling solutions, use nothing but sterile water.

TETANY.

BY SANGER BROWN, M.D.,
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A careful search of the literature up to 1898 shows that not more than one hundred cases of tetany had been reported in this country previous to that time, and hence it is not at all unlikely that many American practitioners have never seen a case, at least in the locality where they practise. The disease, however, is comparatively common in some European cities, widespread epidemics having occurred therein from time to time, thus affording ample opportunity for its observation and study; hence it is from these localities that by far the most important additions to our knowledge of it have emanated.

The number of synonyms found in the literature is suggestive of wide variation in the symptoms as well as in the views of various observers as to their significance. Some of these are as follows: Tetanilla; tetanoid spasm; pseudotetanus; intermittent tetanus; remittent tetanus; rheumatic tetanus; essential contracture; idiopathic contracture; tonic occupation spasm; shoemaker's spasm, etc.

The disease is characterized by tonic spasms, paroxysmal or continuous, and usually symmetrical, limited to the hands and feet in mild cases, but much more extensive in severe ones. Sensory and general symptoms, when present, are almost invariably distinctly subordinate.

Etiology.

It is convenient for purposes of description to group cases occurring in adults as follows:

Idiopathic Artisans.—It has been noticed in certain urban epidemics in Germany that, while shoemakers comprised only 1.3 per cent. of the entire population, 43 per cent. of all the cases was supplied from this class. The relative liability of tailors was about one-third and of cabinet-makers three-fourths less.

Gastro-intestinal.—Dilatation of the stomach due to pyloric stenosis is a complicating factor in this subdivision, but tainted food, diarrhea, constipation and intestinal parasites have each been recognized as of more or less etiological significance.

Pregnancy and Lactation furnish a large proportion of the cases met with in women. In pregnancy the increased liability only belongs to the latter half, the former half, indeed, having been thought to furnish a certain immunity as the occurrence of this condition has seemed sometimes to terminate the spasms when these had previously existed. The extensive and definite influence of lactation as a cause may be inferred from the term "nurse's contracture," given the disease by so famous an observer as Trousseau, though tetany from this cause is said to have been far more common in Paris in Trousseau's time than since. Indeed, it is said to have been very rare in that city of late years.

Thyroid Deprivation, either by surgical interference or disease of the organ resulting in its destruction, may certainly cause tetany, sometimes, as might be expected, associated with signs of myxedema.

The Acute Infections, such as typhoid, scarlet and rheumatic fevers, measles, smallpox, diphtheria, pneumonia, influenza and malaria, either as they are subsiding or during convalescence from them, are answerable for some cases, and the same may be said of such poisons as urea, alcohol and ergot. Some authors maintain, however, that the symptoms and pathological changes produced by the last-named substance are sufficiently peculiar to entitle them to separate consideration.

Hysteria is very frequently and *epilepsy* occasionally associated with tetany. It is probable that the former may be positively, and the latter practically, neglected as the cause of the disease.

Though it occurs at all ages aside from childhood, it is most common in young adults; and if pregnancy, lactation and occupation are not considered, no sexual preference is apparent. That the disease favors certain localities and rarely or never occurs in many others has already been stated, and it may be added that no matter what other etiological conditions may be present, a great majority of cases develop during the late winter and early spring.

Pathogeny.

Many ingenious attempts have been made to demonstrate, both in man and in the lower animals, the existence of some substance which might be regarded either as cause or as result of the disease. But so far, there has been considerable disagreement among different investigators. Principles have been isolated from the contents of dilated stomachs and from the thyroid gland, which, injected into the circulation of the lower animals, have produced convulsions; but this has not appeared conclusive on account of the variable character of the convulsions so produced, and in view of the fact that similar phenomena may be excited by the administration of substances of widely different composition. A consideration of the different lines of original research, however, together with the etiology and symptomatology, strongly supports the theory that the disease results from a toxic substance acting, probably, as an irritant, mainly upon the bodies of the peripheral motor neurons. It seems also that this substance is elaborated in the economy and that there may be some variation in the process of elaboration and even in the composition of the pathogenic product in different cases.

No postmortem findings have as yet thrown any light upon the nature of the disease.

Symptomatology.

Muscular spasm is the essential feature of tetany, but its variations as to quality, quantity and distribution are almost beyond description. Hence, within the last few years it has happened, since considerable attention has been directed to the subject, that a great many cases have been reported as rare, the reporters apparently having estimated them according to the classical descriptions of Trousseau, which were certainly far too narrow.

Paroxysms of spasm, lasting from a few minutes to a few days, then slowly subsiding and recurring in a few hours or days, are the most usual muscular manifestations. But cases presenting continuous spasm occur often enough and these may have partial or complete remission. And so, too, more or less stiffness is pretty sure to remain between the severe and sharp paroxysms; so that while "paroxysmal," "intermittent" and "continuous" are convenient terms by which to designate the character of the contractures, it must be remembered that they are only approximations. The contracted muscles present various degrees of firmness. In the more severe forms, however, they are frequently much harder than they can be made by an effort of the will, and the term "hard as a board" commonly applied to them seems quite appropriate. A spasm usually involves the whole of a muscle, but sometimes only a section of it, as I have often observed in the muscles of the calf and of the abdomen, while fibrillary and even clonic spasms are occasionally seen.

As a rule, the spasm lessens during sleep, though in weakly women mild contractures first appear mainly at night, waking the patient. The contractures are usually much more severe in the paroxysmal than in the continuous varieties, though in two of the cases herein reported the masseters were maintained for several weeks steadily in a degree of contracture that yielded only to chloroform narcosis.

The mechanical excitability of the nerves and muscles is greatly increased, so that in well-marked cases of the paroxysmal type a brisk tap on almost any part of the person may excite a seizure, and so may passive or voluntary movement. Stimulation is certainly more effective applied to the muscles most affected, or to the motor nerve trunks which supply them, than it is in health. Chvotsek has carefully studied this phenomenon, which has been given his name. Gowers has pointed out that it probably forms the basis of Trousseau's symptom, which implies that a paroxysm in a limb may be produced by continuous compression of its main arterial trunk. Gowers noted that, on account of their proximity, this usually involved compression of the main nerve trunks also, to which the muscular spasms were probably due. In some of the continuous cases this increased irritability, if present, is certainly not easily demonstrated.

The electrical excitability of both nerves and muscles is also greatly increased. Erb and Frankl-Hochwart have made thorough and extensive observations on this subject. In general terms, the nerve and muscle are more sensitive to both currents than in health; but in health the first and greatest response is seen on closure at the negative pole (cathode), while in tetany the strongest contraction is seen at the positive pole (anode), being practically alike on either opening or closing. These electrical phenomena, though of great scientific interest, are exceedingly variable at best, and except in the hands of an expert, thoroughly familiar with his methods and apparatus, do not furnish very valuable diagnostic criteria.

The distribution of the spasm is perhaps more variable than its nature. In a large majority of cases it begins in the hands by contraction of the thumbs, flexion at the metacarpophalangeal joints, and extension at those beyond; while the interossei, acting at the same time, draw the fingers together, thus forming the so-called "accoucheur's hand." But though the spasms begin in the hand, the conical or accoucheur's hand may not be formed at all. The hand may be clenched or in the bird-claw position. Indeed, in the same patient, in a developed case, the hands and feet, including fingers and toes, may assume every conceivable position during a single paroxysm. While the muscles of the extremities form the favorite seat of the spasm, it may predominate in other groups throughout, as in the masseters or in those of the back, producing respectively lockjaw and opisthotonus. Indeed, it appears that no voluntary muscle is exempt. Involvement of the diaphragm, vesical sphincter, internal and external ocular, tongue and muscles of deglutation have been reported.

Though the spasms are nearly always symmetrical, I have seen one case at least (Case III. in Appendix) in which they were confined to the left upper extremity—the hand, mainly—throughout an otherwise moderately severe and typical attack. Freund reports two cases of left-sided tetany, which would strongly suggest Jacksonian epilepsy to my mind, were it not that they both presented beginning cataract, and one, at least, had suffered from previous gastro-intestinal disturbance. Thus, it appears, at least so far as the muscles are concerned, that the character of the spasm has more diagnostic significance than its distribution. The muscles generally show some tendency to overaction or a too ready response to voluntary or mechanical stimuli during convalescence, this being more especially observable in protracted cases.

Such sensory phenomena as numbness, tingling or burning in the part, may be complained of for a few hours or even a day or two prior to the spasm; and, while not usually very severe, in certain cases they may for a time divert attention from the real nature of the disease. That the pain resulting from the cramps in severe cases is excruciating can be readily imagined. In mild continuous forms, too, though the spasm is not sufficiently severe in many of the muscles to prevent any desired movement, the patient finds his limbs inevitably falling into a stereotyped position and held there by a sort of ever-present nagging and involuntary tension which, to say the least, is inimical to bodily and mental tranquility. A moderate amount of blunting of sensibility to touch and to pin-pricks which has been claimed by some reporters may be in some measure due to overstimulation of the sensory centers caused by the painful nature of the spasms, as apparently the afferent sensory mechanisms are not affected. In most cases increased reflex excitability can be demonstrated; but in others the presence of spasm may prevent a fair application of the test.

Vasomotor and trophic phenomena, as edema of the parts of the seat of violent spasm, are common and are most notable at the extremities. Occasionally they are quite extensive. Congestion at the extremities, when these are the seat of spasm, is almost invariable, and the same is true of other parts favorable to the observation of this condition, such as the face, eyes and ears. Giddiness, tinnitus and fleeting visual disturbances have been noted in some instances.

Some cloudiness of the lens, virtually beginning cataract, is said to be present in some cases; and Peters, who has studied this condition carefully, believes it to be due to obstruction of the circulation in vessels adjacent to the lens and, hence, to interference with its nutrition. This obstruction, he thinks, is caused by spasm of the ciliary muscle. Having been unable to consult anything more than brief abstracts of Peters' monograph on the subject, however, I cannot speak of the relative frequency of cataract in tetany and therefore of its diagnostic value. I have only examined one well-marked case since my attention was called to this complication and in that no signs of cataract were present.

Similarly, vascular obstruction resulting from spasms of the underlying muscle has been advanced as an explanation of the occurrence of pigmented patches on the skin, which are now and then met with in this disease.

Some general symptoms, such as chilly sensation, pain in the back, nausea, vomiting and diarrhea, with accelerated pulse and the rise of a degree or two in temperature, may be encountered at the outset. But any or all of them may be practically absent in typical cases. Gastro-intestinal disturbance may be marked for a week or two, even in those cases which are free from gastric dilatation, but it is not improbable that in the former as well as in the latter the symptom should be reckoned as mainly etiological.

As cases progress, depending upon their severity and the temperamental characteristics of the patient, more or less emotional and hysterical phenomena may develop. Indeed, these latter may be so prominent as to divert attention from or obscure the underlying symptoms of tetany.

Thorough urinary analyses have not yet resulted in any important findings, and, so far as I know, no reports of blood-examinations have been published, except in a few cases associated with malaria.

Diagnosis.

In typical cases the diagnosis is not difficult if the character of the spasms, their distribution, symmetry and the increased excitability of the muscles and nerves be remembered. Etiological considerations, such as gastric dilatation, also often afford strong diagnostic evidence. In very severe or in very mild cases, however, or in those with unusual distribution of the spasms, peculiar characteristics may not stand out in very bold relief.

Tetanus.—In very severe cases with lockjaw and opisthotonus, and in the absence of the history, the diagnosis might be impossible; and so it might be in a mild type of the continuous form in which the spasm was mainly confined to the masseters, there being only a stiffness of other groups not sufficient to interfere seriously with movement. It should be remembered, however, that tetany usually begins in the hands and feet and involves other parts later, while in tetanus the masseters are among the earliest muscles to be affected, those of the hands and feet usually escaping entirely. In tetany the paroxysms remit much more frequently than in tetanus, and generally the action of the flexors, pronators, abductors and internal rotators predominate in tetany; the extensors, supinators, adductors and external rotators in tetanus. In the mild, continuous cases, involving mainly the masseters, etiological considerations have the first place; for in this type increased excitability of the nerves and muscles is often wanting, and perhaps only the course of the case or discovery of the tetanus bacillus can establish the diagnosis.

Spinal Meningitis.—Tuberculous meningitis and cerebral congestion need be scarcely more than mentioned, for not only are the character and distribution of the spasms when they occur quite different from those of tetany, but the absence of the peculiar excitability, together with the presence of more marked sensory and general symptoms, excludes tetany.

Hysteria, as already stated, is often present as a complication, but except in the major paroxysms, in which the diagnosis is obvious enough, the contractures are not usually symmetrical and the Trousseau sign is absent. In some cases falling under this division, however, a positive diagnosis may be considerably delayed, because the hysterical manifestations may for a time be so great as to obscure other features of the clinical picture.

Epilepsy may, of course, be associated with tetany, but Jacksonian epilepsy has been confounded with it. This could hardly happen to any observer who had had much opportunity of observing both diseases. In this type of epilepsy the spasm always begins unilaterally, and if it becomes general consciousness is lost. The paroxysm is comparatively brief and some weakness usually persists for a longer or shorter period in the part in which the seizure began. In fact, a cerebral lesion of any kind sufficient to excite or maintain spasms for any considerable length of time would all but invariably present symptoms proclaiming pretty plainly its nature and seat.

Spasmodic Wry-neck.—When a considerable degree of continuous muscular spasm, with paroxysmal exacerbations which may be provoked by voluntary movement, developing within a few days, has its seat in the muscles that move the head, thus producing postures characteristic of wry-neck, even though the spasm involve the muscles of the face, larynx and back of the same side sufficiently to interfere with phonation and bend the trunk strongly backward and to the same side, a diagnosis may have to be deferred for further observation. This statement describes the symptoms of a vigorous sewer worker, twenty-six years old, accustomed to standing many hours in water, who was for several weeks under my observation at St. Luke's Hospital. The possibility of his disease being anything but torticollis did not occur to me at that time, however, and by my advice the posterior branches of the four upper cervical nerves were resected, with only temporary relief.

Prognosis.

There is a wide variability in the duration of the disease, ranging from a few hours to a few months, though doubtless a majority of the attacks might be measured by days rather than weeks or hours. In adults of good general health the prognosis is highly favorable. Complete recovery, however, is often tardy and partial relapses are not uncommon. Patients not infrequently complain of an inadequate sense of muscular repose, and occasionally even slight visible spasm occurs for several months subsequent to the cessation of active manifestations of the disease.

Tetany occurring in the latter half of pregnancy usually terminates with delivery, and that of lactation is likely to be protracted but not very severe. Generally the exciting cause of the first attack may produce subsequent attacks of a similar character, this being especially conspicuous in cases associated with pregancy and lactation. In debilitated subjects the danger of death from exhaustion is considerable, especially if the spasms be widespread and the paroxysms severe and frequent.

In cases due to gastric dilatation the prognosis is very grave aside from a consideration of the fatal tendency of the disease giving rise to the stenosis to which the tetany is secondary.

Although in a very large majority of cases the danger of a fatal result is remote, the proportion in which it may develop is large enough to warrant a careful and serious consideration in every instance.

Treatment.

In cases resulting from extirpation or atrophy of the thyroid the treatment is obvious and the response is usually prompt and satisfactory; also in the tetany of pregnancy, the induction of premature labor or abortion, like parturition at term, is pretty sure to terminate the disease, thus forming a striking contrast to the chorea of pregnancy, in which these measures are rarely effective; a considerable proportion of cases progress to a fatal result notwithstanding.

Excepting for thyroid and pregnancy cases, no specific has yet been discovered. Current views of the pathogeny, in the absence of an antidote, favor the eliminatives. Tonics and supporting measures, the correction of any dietary, digestive or metabolic vices and judicious exhibition of sedatives and hypnotics are severally indicated in most cases, while in the early stages, apart from those cases resulting from gastric dilatation, nausea, vomiting and diarrhea must be prescribed for. The cases due to dilatation of the stomach are in a class by themselves and, as a matter of course, the treatment appropriate for that disorder must have first place.

Neither my experience nor my reading prompts me to advise definite measures for the treatment of this disease with a view to curtailing its course, for I have never seen or read of any results sufficiently conclusive to warrant it. Though bleeding is said to arrest the spasms temporarily, no result has ever been gained from depletion to warrant the employment of measures which might expose the patient to the danger of fatal exhaustion. But bearing this in mind, I know of no contraindication presented by the disease to promoting free elimination through the kidneys, bowels, skin and glandular system generally.

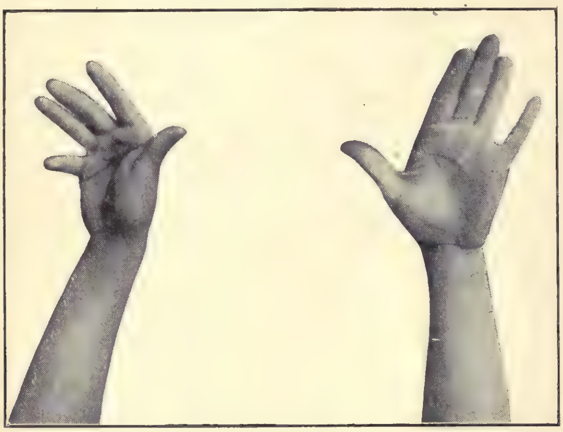
The relief afforded by sedatives and antispasmodics is often urgently demanded. In transient attacks due to exposure, morphine may be used and rather full doses are required, but in protracted cases it rarely answers well, because the quantity required to maintain a satisfactory antispasmodic effect is likely to cause serious constitutional disturbance of one kind or another. Potassium bromide in full doses—30 to 60 grains, three times a day in a glass of water—is by far the most generally useful sedative, though alone it will scarcely ever promptly modify a severe and widespread paroxysm. Its good effects are seen a few hours after its administration is begun, and they may generally be maintained indefinitely. The hydrobromate of hyoscine hypodermically administered is very quickly efficient in relieving the severity of the paroxysms in some instances. One-twenty-fifth of a grain may be given every hour until the full medicinal effect is produced, when a smaller dose at longer intervals suffices. Of the hypnotics, chloral has yielded the best results in my hands, and when either sedatives or hypnotics have been given in full doses without prompt relief, light chloroform narcosis will quickly install the condition sought, which may then continue independently. Full chloroform narcosis may be relied upon to produce complete relaxation and must be at hand in those cases in which involvement of the laryngeal and the respiratory muscles threatens a speedily fatal asphyxia. Especially in the laryngeal spasm, it may for the first few moments appear to aggravate the difficulty unless care be exercised in its administration. Hauber has reported benefit from vigorous massage of the muscles while they were in the relaxation of narcosis. Relaxation may also be induced by the subcutaneous injection of pilocarpine; but, unfortunately, the suppression of the spasm afforded by either pilocarpine or chloroform does not prevent its recurrence, while the continuous administration of either drug is highly conducive to a severe and perhaps dangerous exhaustion. The degree of medication of any kind necessary to subdue severe paroxysms demands, of course, the presence of a physician.

Appendix.

Case I.—A healthy peddler, twenty-six years of age, presented himself at the clinic of the Post-Graduate Medical School in June. He had been in the habit of carrying a heavy pack, had walked a long distance the day before, and had been thoroughly drenched with rain. He awoke after midnight with severe cramps in the calves and feet, the paroxysms lasting, with remissions, two or three hours. He complained that the parts felt lame and stiff. The case was not observed further.

Case II.—A healthy barber, thirty-two years of age, of correct habits, had worked long hours at his trade for many consecutive years, with hardly a day's vacation. He became irritable and easily fatigued. After returning home from work at night, he was subject to severe and painful paroxysms of spasm in the hamstring muscles. A few weeks of outdoor life were recommended in his case, but he only recently came under observation and no progress can be reported.

Case III.—Healthy man, twenty-two years of age, of uncertain habits, was admitted to St. Elizabeth's Hospital in May, 1894, and remained under observation ten days, during which time his symptoms underwent no perceptible change. He stated he had left home without parental approval several months before, had recently been out of funds, and had tramped, undergoing a great deal of exposure. The spasms began about two weeks before admission and in a few days were about as on admission. They had never been painful and he had not noticed any altered sensation in the parts at any time. They had never been more extensive or severe than on admission. The spasm was confined to the hand and forearm and is fairly represented by the picture, though the deformity was much greater than is shown when a voluntary movement was attempted, as buttoning the clothing or handling a knife and fork at table. Though the little finger of the right hand is somewhat separated from its neighbor in the picture, there was no spasm in that member.



Case IV.—A hard-working woman physician, thirty-eight years of age, of vigorous physique, had acute indigestion after eating shrimp salad, with some malaise for a day or two following; then she was surprised to find on rising continuous spasm of the masseters, preventing the introduction of an ordinary mouthful of food. The jaws could be opened so as to admit the point of the little finger and closed as well as ever throughout the illness. There was a degree or two, or perhaps at times three degress of fever and considerable general nervousness. The knees were drawn up and adducted, the feet being slightly rotated inward. The arms were flexed on the chest with the wrists bent toward the radial side. This posture of the limbs was unconsciously assumed with the dorsal decubitus and undoubtedly indicated some degree of continuous spasms in the muscles concerned; but with the exception of the masseters there was at no time any considerable conscious impediment to the use of any of the muscles. Sensation was intact, but there was considerable general discomfort, especially for the first few weeks. Chloroform alone produced relaxation of the masseters. It was several weeks before they began to relax, and several months later an entirely satisfactory condition of muscular endurance and tranquillity had not returned, though the patient had resumed work as usual. There were never any paroxysms or exacerbations of the contracture.

Case V.—A farmer and bank president, aged fifty-six years, of regular habits and excellent health, noticed for several days an increased difficulty in mastication. His jaws seemed stiff and there was also some stiffness in neck and back. Finally his teeth could only be separated about one-sixteenth of an inch, though they could be readily closed and separated to that extent, and the movement of the back and neck was slow and somewhat restricted. The arms and legs appeared quite free.

Excepting the nervousness attributable to anxiety prior to a favorable prognosis, the general condition was normal. No objective or subjective sensory symptoms were present at any time. Occasionally the jaws would fall somewhat during sound sleep, when apparently the tension of the masseters thus caused would appear to excite a return of the spasm. The patient was fed through the nose six weeks before any perceptible abatement of the spasm supervened. Then gradual recovery began with some conscious sensation in the muscles incident to their activity, persisting for several months. Unless the phenomenon occasionally noted during sleep be accounted such, no paroxysm of spasm appeared at any time. A very exhaustive inquiry utterly failed to reveal anything of etiological significance.

Case VI.—An intelligent American, twenty-nine years of age, single, tailor, of temperate habits and good heredity, was admitted to Cook County Hospital Nov. 2, 1901. He said that prior to his present illlness his health had been good since childhood. On the night of September 15th he rode about six hours on a flat car and became severely chilled. The next day he felt uncomfortably chilly and had colic, diarrhea and some nausea, but does not think he was feverish. He had eaten some canned lobster at a buffet before riding on the car. On the morning of September 17th he played pool while waiting for a train. His stomach, however, was not quite settled and he still had some diarrhea. On settling for the game he noticed for the first time that he could not pick up his change on account of spasm in his fingers and especially in the thumbs, which were drawn in toward the palms, while the fingers were pressed closely together, flexed at the metacarpophalangeal joints and extended at those beyond. In the course of a few hours the hands and feet were strongly turned inward, especially when voluntary movements were attempted, so that walking was almost impossible. In the course of from thirty-six to forty-eight hours paroxysms of intense spasm affected nearly all the muscles of the body, often causing excruciating pain. The most severe pain, however, was caused by contraction of the muscles of the neck, during which the head was strongly drawn forward. For the first few days, at the height of the paroxysms nausea and vomiting would occasionally occur. Between paroxysms he would sometimes secure several hours of sleep, providing he had a comfortable bed. As a matter of fact, he underwent a great deal of exposure for some weeks prior to admission. On examination he was seen to be a well-formed, muscular and fairly-nourished man, with a rather haggard and anxious expression; more or less tonic spasm was seen in various muscles almost constantly, whereas a comparatively slight voluntary movement or a slight blow on any part of the person would usually precipitate a severe paroxysm lasting several minutes. With the exception of the ocular, facial, masticatory, laryngeal and respiratory, no muscles were spared. The large muscles of the abdomen, back and limbs were as "hard as a board" during a paroxysm, but, with the exception of the hands and feet, the contractures caused much slighter changes of posture than might have been expected. The fingers and toes were thrown into every conceivable contortion. He complained that his memory was impaired, though this was not apparent to me and might be accounted for to some extent by his suffering. His responses to touch and pin-pricks seemed somewhat less than normal, but how far the apparent reduction might have been due to distraction incident to the painful paroxysms it was difficult to say. There were no premonitory subjective sensory symptoms. The treatment consisted of 20-grain doses of potassium bromide, well diluted, every three hours, with 15 grains of chloral at night to induce sleep; this latter drug was withdrawn a few days later. In a few days he was comparatively comfortable and in a week could stand, though there was considerable drawing of various parts caused by voluntary movement. He was discharged December 10th, feeling better, as he said, than for several years, which is a common but no doubt candid expression of many convalescents. There was still, however, occasional drawing in the hand and feet, most notably, however, in the thumbs. That is, the parts first affected were the last to recover—a fact that may be regarded as supporting the theory that the spasm is the result of an infection acting upon the peripheral motor neurons.

Until some new demonstration which will warrant a separation on pathological or pathogenic grounds be made, it may be expedient to go on including under one caption cases presenting such wide variations as did this last, but, if to these there be added the cases incident to childbearing, infancy, or childhood, gastric dilatation and thyroid deprivation, the necessity for further investigations along this line which will permit a more satisfactory classification is sufficiently obvious.

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THE EXAMINATION OF THE GASTRIC CONTENTS IN CHILDREN.[1]

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WE are indebted to Bauer, Deutsch, and Leo, among others, for certain systematic rules and deductions based upon the physiological chemistry of the gastric contents in children.

Following along the same line I have repeated a series of experiments with a view to confirming or adding to the results already known. The method of obtaining the gastric contents was very simple. When a poor appetite existed for months in a subacute dyspepsia, a Nélaton catheter was introduced through the esophagus into the stomach and the gastric contents were siphoned off. In children under one year, fed on the bottle or on the breast, the time chosen for siphoning the gastric contents was one hour, one and a half and two hours after feeding. The greatest number of examinations made by me were the result of specimens of vomit secured by the nurse or the mother in charge of the patient. The frequency with which children vomit and the ease with which they vomit were important factors which prompted me to procure such specimens, when possible.

The following method was used excepting in several instances in which Töpfer's method of estimating HCl was preferred.

Chemical Examination.

After the removed chyle is filtered it is ready for the following tests:

Hydrochloric Acid.—Free hydrochloric acid turns Congo-red a deep blue color; but as the presence of large quantities of lactic and other organic acids gives the same reaction, and as the phloroglucin-vanillin (Günzburg's reagent) does not respond to the organic acids, it is better not to depend upon the simpler Congo-red test. One or two drops of the filtered stomach-contents are placed on a white porcelain dish; the same amount of the reagent is added and thoroughly mixed with a glass rod; the dish is then gently warmed over the flame. The appearance of a bright cherry-red color on the edge of the residue indicates the presence of free hydrochloric acid.

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[1] Read before the Section on Pediatrics of the New York Academy of Medicine, January 9, 1902.

Estimation.—To 10 c.c. of the filtered chyle add one drop of phenolthalein solution; to this add drop by drop from the burette a decinormal solution of potassium or sodium hydrate until after thoroughly stirring a pink color persists; now read carefully the number of c.c. of the alkali solution used, multiply by 10 and 0.00365 (the decinormal factor of HCl) and the result is the percentage of HCl. If sufficient material is at hand, the estimation should be repeated to avoid possible error.

Lactic Acid (Uffelmann's test).—One drop of the solution of ferric chloride is added to 20 c.c. of the ½-per-cent. carbolic-acid solution; this is diluted till a transparent amethyst blue color is obtained. A few drops of the fluid to be tested added to a few c.c. of this solution in a test-tube change the amethyst blue to a canary-yellow if lactic acid be present. On account of the presence of various other things, this test is sometimes not distinctive when the untreated chyle is used. A more certain procedure is to add to 10 c.c. of the filtered chyle in a test-tube 10 c.c. of ether; shake thoroughly; allow the ether to separate; decant the ether into a clean test-tube; place the test-tube containing the ether in a glass of warm water till the ether has evaporated; add 5 to 10 c.c. of distilled water to the residue, and test as above for lactic acid.

Propeptone.—To 5 c.c. of chyle, add 5 c.c. of saturated solution of sodium chloride and 2 drops of acetic acid. A cloudiness or precipitate indicates propeptone, especially if the precipitate disappears on heating and returns on cooling.

Peptone.—Filter out any propeptone from the last-named; add an excess of sodium hydrate solution; mix thoroughly and add one or two drops of a weak solution of copper sulphate (1-2 per cent.); the appearance of a violet-red or old-rose color indicates peptone. This is the so-called biuret reaction which most peptones and albumoses give.

Pepsin.—For this test we require uniform, small pieces of coagulated albumin; these should be little circular slices of hard boiled white of egg, 1 cm. in diameter and 1 mm. in thickness, which may be preserved in glycerin. One of these little disks is placed in a test-tube containing 5 c.c. of filtered chyle and kept at a temperature of 99° F.; if it has been already shown that hydrochloric acid is absent, a drop or two of dilute hydrochloric must be added. The tube is observed every twenty to thirty minutes to note the progress of digestion and the time required for complete disappearance of the egg albumin.

Rennet.—Add a few drops of chyle to 5 to 10 c.c. of milk and place tube in water at a temperature of 99° F.

Motility.—The motility of the stomach may be tested in various ways; probably the salol-test, although open to many objections, is the most used.

This test finds the foundation for its use in the fact that salol is not absorbed until it reaches the alkaline secretions of the intestine by which it is decomposed. The test is untrustworthy when the stomach secretion is alkaline. The time between ingestion and the appearance of salicyluric acid in the urine is noted by examining the urine at intervals of one-half and one hour after taking fifteen grains of salol (immediately after meal). If salicyluric acid be present in the urine, the addition of a few drops of a solution of ferric chloride gives a violet color. If the appearance of the test be delayed longer than an hour or an hour and fifteen minutes, the motility is usually considered below normal.

Resorptive Power.—This may be tested very easily by giving four or five grains of potassium iodide in capsules before meal-time, and by testing the saliva every few minutes for iodine by dipping strips of filter paper moistened with starch paste into the saliva acidulated with nitric acid.

More weight is probably to be laid upon the percentage of free hydrochloric acid. A few common observations of the indications of the hydrochloric acid percentages are here given.

Uffelmann's Reagent.—If a solution containing lactic acid be added to some of this reagent, the violet color will be changed to a canary-yellow when the acid is present in moderate quantity, or into a greenish-yellow if the amount be small. As little as 0.01 per cent. of lactic acid will serve to produce the reaction. Unfortunately, lactic acid is seldom present alone in the stomach, and as other acids change the color of the fluid in a different way the result of the reaction may be very indefinite. Thus, free hydrochloric acid simply discharges the color of the solution; when combined with proteid bodies it gives it a yellow-brown tint, which is very similar to that produced by acetic acid. Butyric acid discharges the color of the solution, but generally gives it a grayish opalescent look. Both tartaric and citric acid give the same reaction as lactic. Free hydrochloric acid, therefore, simply discharges the color, lactic acid causes it to become a bright canary-yellow, acetic and combined hydrochloric acid give a yellowish-brown, and butyric acid a grayish opalescent appearance to the solution.

Another reaction which may be used to identify lactic acid, and which is rather more delicate than Uffelmann's, is brought about by adding one or two drops of a dilute solution of perchloride of iron to 50 c.c. of distilled water. When lactic acid is added to this, even in very dilute propor-

BREAST-FED INFANTS.

Name.	Age.	Time since last feeding.	Stomach Contents.	Condition of the coagula.	Reaction.	Günzburg Reagent (HCl.	Lactic Acid.	Propeptone.	Peptone.	Rennet.	Remarks.
1. Baby William	1 month	2 hours	None	None	Neutral	None	None	None	None	None	Normal infant.
2. Baby William	5 weeks	1½ hours	Some	Very fine	Acid	O	+	+	+	+	Normal infant.
3. Baby Charles	3 months	3 hours	Some	Very thick	Acid	+	+	+	+	+	Child very colicky. Infant not thriving. Syphilis.
4. Baby May	6 months	4 hours	Some	Very thick	Acid	+	+	+	+	+	Hydrocephalic infant.
5. Baby Allen	9 months	4 hours	None	None	None	None	None	None	None	None	Child is in excellent health.
6. Baby Trinz	1 year	4 hours	Some	Very fine	Acid	None	Very strong	+	+	+	Always was delicate. Anorexia.
7. Baby Moses	1 year	4 hours	Large quantity	Very thick	Acid	+	+	+	+	+	Vomits frequently. Rachitis.
8. Baby Fischer	1 year	4 hours	Traces, about ʒi	Very thick yellowish	Acid	+	+	+	+	+	Child vomited after swabbing throat.
9. Baby Harold	1 year	3½ hours	About 1 ounce	Very thick yellowish, sour smelling	Acid	+	+	+	+	+	Convalescing from colitis; vomited after dose of ipecac given to relieve spasmodic croup.
10. Baby Swan	13 months	4 hours	One ounce	Very fine	Acid	+	+	+	+	+	Examined for adenoids; otherwise healthy infant.

Estimation of Free and Combined HCl by Toepfer's method (Boas' Allgemeine Diagnostik, p. 166, III., auflage p. 167).

tions, the solution, which is almost colorless, develops a light yellow tint. The three acids just mentioned do not give this reaction. A few drops of the stomach-contents dropped into the iron solution cause the same change of color, should lactic acid be present.

The following series of cases will give an idea of the results obtained and the deductions to be drawn therefrom. The specimens were secured from patients in the children's service of the German Poliklinik. Three specimens were secured from patients ill with diphtheria at the Willard Parker Hospital.

Breast-fed Infants.

Cases I. and II. were those of a healthy breast-fed infant. The child suffered from occasional colic. A specimen of breast-milk was submitted to a chemist who reported the percentage of fat, sugar and of proteids normal. The question of nursing less often arose. In order to satisfy myself that the stomach was empty two hours after feeding, I siphoned the gastric contents and found no trace of food. The feeding was continued. One week later I siphoned off the gastric contents one and a half hours after feeding and found some chyle. The feedings were continued and the child gained in weight.

Case III.—Baby Charles, three months, nursing, was brought to me with a history of crying one hour after nursing; the child has greenish and cheesy stools, is very fretful, sleeps very little, screams very loudly, has much flatulence; child gains from two to three ounces per week. The child weighed about seven pounds at birth and now weighs only eight pounds, ten ounces. The mother of the infant has menstruated every month since her accouchement and there is evidence of syphilis from her history. The mother very reluctantly weaned the baby and the latter made a decided improvement on hand-feeding. Internally, iodide of sodium in one-grain doses, three times a day, seemed to act well. The diagnosis of syphilis may, I think, account for the non-development of this infant.

Case IV.—Baby May was brought to me with a history of vomiting. The infant was highly emaciated; chronic hydrocephalus; the presence of very thick coagula in the stomach four hours after nursing showed the subnormal digestive power of this infant. It is interesting to note the presence of HCl and lactic acid in this infant.

Case V.—Baby Allen, nine months old, two lower incisors since two months, was brought to me for treatment of cough. The child had a temperature of 104° F.; the throat was congested and had small patches on each tonsil. The diagnosis of angina follicularis was made. While examining the infant's throat it vomited glairy mucus, evidently from the esophagus. This infant, according to its history, had not been sick since its birth. There was no evidence of rickets.

Case VI.—Baby Trinz was brought to me for constant anorexia. The mother stated that the infant had to be coaxed to nurse ever since birth, and had never had an appetite as she saw it in her other children. The catheter was used to siphon off the gastric contents four hours after nursing; they appeared to be abnormal. The infant was put on nux vomica, massage was ordered, and gentle faradization seemed to improve the appetite.

Case VII.—Baby Moses was brought to me because of constant colic, greenish stools alternating with constipation and frequent vomiting. The infant was very rachitic, showing evidence of malnutrition and stagnation of food. The diagnosis of fermentative gastritis was made. The abdomen was distended, also the colon. There was no evidence of dentition. The infant's mother believed her child had been teething for the last six months. Weaning was ordered and artificial feeding given.

Case VIII.—Child Fischer, a normal infant, one year old, was brought to me for the treatment of post-nasal catarrh. While swabbing the pharynx a small quantity of gastric contents was obtained, which was normal in reaction, although very thick in consistence.

Case IX.—Child Harold was under my care for several weeks suffering with an attack of colitis. The infant was improperly fed and was permitted to drink large quantities of lager beer, to which I attributed the enterocolitis. While the infant was convalescing the nurse reported that he awoke with spasmodic croup. This was relieved by ipecac, which caused vomiting. Almost an ounce of yellowish white fluid, containing mucus, very sour smelling, was obtained. About eight hours after vomiting the specimen was examined.

Case X.—Baby Swan, brought to me for relief of cough, which occurred mostly at night, was examined by me for adenoids. The finger inserted in the post-nasal space caused vomiting. The infant was healthy, digestion good, bowels moved regularly, sleep good. Infant one year old had six teeth, four upper and two lower incisors.

Résumé of These Ten Breast-fed Infant Specimens.—Healthy children invariably showed finely flocculent contents, excepting *Case IV.*, hydrocephalus, and *Case III.*, syphilis. *Hydrochloric acid, free or combined, was always present.* Even in *Case VI.*, Baby Trinz, always delicate, poor appetite, gastric contents showed very fine flocculent condition.

Bottle-fed Infants; Artificial Feeding.

Case I.—Baby John, two months old, was breast-fed for the first three weeks of life. The child cried after nursing and frequently sucked a half hour and longer. The stools were slimy, greenish, and the infant was restless and did not sleep. Scanty milk was suspected and weaning was ordered. The infant was fed on condensed milk. The child again seemed to have colic and the mother gave the following:

Milk, cream, water, for one feeding; sterilized.

This last formula was given for about one month; the infant gained in weight, but had

BOTTLE OR ARTIFICIAL FEEDING (STERILIZED OR PASTEURIZFD MILK).

Name.	Age.	Time since last feeding.	Stomach contents.	Condition of the coagula.	Reaction.	HCl.*	Lactic Acid.	Propeptone.	Peptone.	Rennet.	Diagnosis and Remarks.
John	2 months	2 hrs.—vomit	Some	Lumpy, thick	Acid	None	+	+	+	None	Dyspepsia infantum.
Amy	8 months	3 hrs.—vomit	Some	Coarse, thick, lumpy	Acid	None	+ Also butyric acid	None	None	None	Rhachitis pertussis.
Henry	1 year	2 hrs.—vomit	Large quantity	Very thick, lumpy	Acid	None	+	+	+	+	Gastritis fermentativa.
Beatrice	11 months	3 hrs.—vomit	Small quantity	Very thick curds	Acid	No	+	+	+	Slight	Dyspepsia rachitis.
William	15 months	3 hrs.—vomit	Small quantity	Very thick lumpy curds	Acid	No	+	+	+	Slight	Atonia gastrica.

Note the difference in the appearance of coagulum—always very thick and lumpy compared with thin, flocculent condition in breast-fed infants.

*Günzburg reagent used to test presence of HCl.

cheesy, curded stools and vomited occasionally. The vomit had a very sour smell.

The examination of the gastric contents showed the presence of combined acids, traces of acetic acid, also butyric acid, lactic acid in abundance, no HCl, coarse lumpy coagulum. Castor oil and a diet of whey for a few days improved the condition.

Milk, whey, granulated sugar, for one feeding; milk warmed.

Diluted HCl, one drop doses, three times a day, acted very well. The stools and general condition improved.

Case II.—Amy W., colored, eight months old, constipated since birth, markedly rachitic, beaded ribs, pendulous belly, no evidence of dentition, is a very irritable, crying baby. Has received various soothing syrups to induce sleep; appetite was always poor; infant received tea and sugar, condensed milk and water since birth. She was brought to the clinic for the treatment of whooping-cough which had existed about one month. The cough is very troublesome; the child frequently has five and six paroxysms in an hour; the paroxysms usually end in vomiting. In this manner the gastric contents were procured and examined. They were slimy, contained yellowish mucus, also traces of bile, very acid in reaction; lactic acid was present, also butyric acid; no HCl, no peptone, no propeptone. *Coagulum, coarse lumps.* The child improved for a short time under cod-liver oil, and did not report, owing to the illness of the mother.

Case III.—Henry M., one year old, was referred to me for my opinion regarding meningeal disease. The child was hand-fed since birth, did not seem to develop as the other children in the same family, and vomited on the slightest provocation. The child was unable to talk or walk and seemed to be generally backward in development. The food since birth was milk and water, one part milk, three parts water; later at three months old, two parts milk and two parts water; still later, three parts milk and one part water. At nine months to one year, malted foods. Since using these malted foods, there had been colic, vomiting and very loose bowels. The examination of the child showed a poorly-nourished infant; slight rickets of cranial bones; two teeth, upper incisors; child sits alone and appears dull mentally; fontanelle is not distended; no evidence of paralysis of lower or upper extremities; Kernig's symptom absent. Patella reflexes normal, pupils respond normally to light. The abdomen is large, distended and very tympanitic on percussion; the child has frequent eructations and is very flatulent; the child vomits easily, as when crying or coughing. The vomit was examined about two hours after feeding and showed a very acid reaction. Presence of lactic acid, no free HCl, propeptone, peptone, also rennet, acetic acid, large quantities of mucus. Epithelium was found by examining a drop under the microscope, starch granules and also the leptothrix. In this case I ruled out all possible meningeal disease, for the trouble was distinctly confined to the stomach and intestines. Coagulum, very thick, coarse lumps. A specimen of urine secured by means of a catheter showed presence of indican.

Case IV.—Beatrice M., eleven months old, fed on laboratory milk. The child gained in weight and, excepting for occasional constipation, was not ill during the first seven months of her life. Dyspeptic symptoms then developed; she had frequent colicky spells, curded, cheesy stools, fever and intense thirst and very restless nights. Her weight remained stationary for three weeks, then she began to emaciate. When first seen, laboratory milk was discontinued and the infant placed on sweetened whey and on barley soup. As soon as milk was added to the whey vomiting commenced, which ceased when milk was discontinued. The examination of vomited gastric contents showed no free HCl, lactic acid very abundant, propeptone, peptone, rennet, all present. There were traces of butyric acid and of lactic acid. The *coagulum was in very thick, coarse lumps.* The milk was prepared by adding peptogenic milk powder, which was well borne and the colicky symptoms soon improved.

Case V.—William G., fifteen months old, has been a bottle-baby since birth. He now has eight teeth, is commencing to talk and to walk. He is poorly nourished and looks quite frail. The mother states that he has not had a natural stool since birth; she invariably gives him an enema or cascara drops. His stool is always in round, pasty balls, like marbles, and very hard. His appetite has always been very poor and he never takes more than four or five ounces at one meal. When she urges him to take more, he vomits. The specimen of vomit, about one ounce, was examined about three hours after feeding. The coagulum was a thick, very rubbery curd like pot-cheese, almost solid, reaction acid, no free HCl, lactic acid present, no butyric, no acetic; propeptone, peptone and rennet were present. The case was diagnosed as gastric atony. With the aid of massage, gentle faradization, and internally one drop of nux vomica half an hour before feeding, the appetite and general condition were greatly improved. The infant still receives diluted milk, *i.e.*, milk, two parts, oatmeal water, one part, and is fed every four hours.

The ease with which children vomit made it possible to procure a series of specimens for examination. In some instances a soft, flexible, Nélaton catheter, No. 12 or 14, was used to siphon the gastric contents. The slightest irritation of the fauces frequently provokes vomiting. The presence of an intelligent nurse made it very easy to procure a specimen of vomit in a great many cases.

Of a series examined, three specimens were obtained in this manner from children at the Willard Parker Hospital. As these were from malignant cases of diphtheria, no attempt was made other than to watch at the time of the nausea for the specimen. *Free HCl was not present in very young children, especially in those cases fed ex-*

clusively on milk. This was equally true of breast-fed and bottle-fed babies. That hydrochloric acid was secreted, however, can be proven by the presence of both the peptone and the propeptone reactions. Milk exists with the acid and forms acid albuminates; hence the hydrochloric acid exists in combination and not as a free acid.

Leo[1] and Einhorn[2] in a series of interesting experiments demonstrated this important fact. In my series of experiments I have found that the acidity in milk babies is very low; thus I can fully indorse the statements of Leo and Einhorn.

From a therapeutic standpoint we cannot emphasize too strongly the necessity for remembering that hydrochloric acid is rarely found as free hydrochloric acid in the infant's stomach. As this is the case in the normal infantile stomach, it is erroneous to give HCl, because the same cannot be demonstrated in the vomit or in the gastric contents.

Epstein was the first to recommend and advocate the use of lavage in children.

Leo examined one hundred and thirty-four children in the clinics of Professor Senator and found that it is best not to dilute the gastric contents. The diluted gave a neutral reaction, whereas the undiluted gastric contents gave an intense acid reaction. Macroscopical appearance: Mucus, slimy; consistence usually due to swallowing larger quantities of saliva. How long milk remains in the stomach before entering the intestine he cannot state, but believes that a larger quantity leaves the stomach as early as *half an hour after it has been swallowed.* Time of total disappearance depends on the presence or absence of pathological conditions.

In the first few weeks of life the stomach is empty one hour after nursing. Older children have a larger quantity left one hour after nursing. The maximum time required to empty the stomach under normal conditions in the first few months of life is one and a half hours. Leo agrees with Epstein on this point.

When cow's milk was used food was found several hours after feeding. The stomach was never absolutely empty, as frequently yellowish liquid could be found in the catheter. This is a concentrated liquid which contains all that could be found, even though it may be present in a larger quantity.

No Direct Reaction was Found.—Small quantities of gastric liquid are not caused by the introduction of a sound. If the stomach is continuously washed without food being partaken of, a fluid will be found which has a neutral reaction. Thus, small quantities of liquid or gastric contents found in an empty stomach are probably due to *residues* from a previously digested process. Reaction very soon after feeding or nursing depends, in a measure, on the reaction of food swallowed, thus breast milk is alkaline, amphoteric, neutral when tested with litmus; whereas, fifteen minutes after swallowing the food, the reaction is slightly acid, which acidity gradually increases in intensity. *Cow's milk* is amphoteric, neutral, or slightly acid.

Free acid can be detected only after considerable time by the Congo reaction. This is usually not even one hour after taking the food. It is difficult to receive gastric contents at the end of digestive process, but wherever it was possible HCl was found, even though in small quantities. Lactic was usually associated with it.

Point of *clinical importance* in the presence of lactic acid in children and adults: To find lactic acid the filtered gastric contents was shaken with ether and examined. Combined acidity as also relative quantity of HCl is smaller proportionately than in adults. A few drops of normal $^1/_{10}$ alkaline solution is sufficient and will neutralize all acid present half an hour after infants have taken food, when 10 c.c. of gastric contents are withdrawn. The gastric contents of two infants was examined two and three hours after birth respectively, before food was taken, and gave a very acid reaction.

Congo and phloroglucin-vanillin reaction were present. Free HCl is secreted and Leo insists that it combines with milk and has been overlooked. That milk will combine with HCl can easily be proven experimentally. A small quantity of HCl will be entirely neutralized in another form. Phosphates of soda, which neutralize the acid phosphate, Soxhlet found in milk.

Annie S., four years old, was brought to me with the following history: She has always been delicate, has no appetite, and suffers from constipation. The mother stated that the child has to be forced to take food at almost every meal; the child is rarely comfortable for one day, invariably complaining of pain in her abdomen and stomach. Frequently the pain seems continuous, so that the child is continually suffering. The child was breast-fed for three months and then weaned. The mother stated that the child was taken from her breast and weaned during an attack of typhoid fever, from which she suffered. Her child was then put on sterilized milk and the infant suffered with colic, vomiting, and extreme constipation. After several weeks of bottle-feeding, the child lost considerable weight, and was then put on condensed milk, diluted with water, on which she was nourished for one month. When the child was six months old she was put on Mellin's food, to which some milk was added and this seemed to agree for several months. When the child was nine months old, she weighed ten pounds with her clothes on. During her first summer she had a severe attack of summer complaint which lasted nearly two months, during which she became so emaciated that she resembled a skeleton. Thus her first year ended without the eruption of a single tooth. The child was unable to stand, walk, or talk. She had a marked rachitic kyphosis in addition to a pot-belly; there were marked beads on her ribs and the epiphyses of the long bones were very prominent. Her head showed marked symptoms of rickets; the fontanelles were very wide open and there was distinct softening of the occipital and the frontal bones. The child suffered from marked sweating of the head and also of the body. There was a large bald spot at the occiput. The child snores and the mother states that it has snored and breathed through its mouth since the end of its first year. Besides an attack of measles from which the child suffered at the beginning of its third year, nothing of importance transpired. The child's appetite has always been poor, and she prefers liquids, which she gulps down in large quantities. The mother states that the child refuses meat and will not eat vegetables or fruit, but likes milk, tea and beer. This child has been given half a tumbler of beer since its second year, at every noon and evening meal, to quote the mother, "just like the rest of the family." The present condition of the child is very poor; she has a very anemic appearance; her skin has lost its normal elasticity; it is shriveled under the arm-pits and also between the thighs; there are distinct evidences of rickets in the bony structures; the muscles are very flabby; the teeth are very carious and irregular; the child has bow-legs; there is continual constipation; the child requires an enema or cathartic almost every day; the appetite is poor; there is a marked tenderness on palpation over the stomach and abdomen; this tenderness cannot be localized.

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[1] H. Leo, Berlin klin. Woch., No. 49, 1888.

[2] M. Einhorn. Stomach Digestion, N. Y. Med. Jour., July 20, 1889.

The child was given a cup of tea without sugar or milk and a piece of zwieback as a test meal. One hour later the gastric contents were siphoned off with the aid of a soft, flexible, No. 10 catheter. The chemical examination showed a decided absence of hydrochloric acid and an excess of lactic acid. The stomach was then thoroughly washed with two pints of a normal salt solution until the contents flowed clear. The child was given two minims of tincture of nux vomica before each meal. The diet consisted of peptonized milk, soup, broth, buttermilk, one soft-boiled egg, and some acid fruit, like oranges and grapes. Wine-glass doses of citrate of magnesia were given for their laxative effect. Massage of the stomach and bowels was given for ten minutes every morning. This therapeutic measure is of great service in stimulating peristalsis. This treatment was continued for six months and the child gained in weight, her appetite improved, and her physical condition was benefited. Gentle faradization over the stomach and bowels seemed to have a marked beneficial effect. The examination of the gastric contents three months after the treatment was commenced showed a marked increase in HCl, as there was a decided reaction with Congo and also with Günzburg's reagent.

The diagnosis of atony with dilatation of the stomach, was made. Aided by the history and by the tenderness, which was so marked on palpation, peritonitis was suspected. The examination of the gastric contents showed marked peculiarity, inasmuch as there was a total absence of hydrochloric acid in two different examinations. Added to this was the presence of lactic acid. If the same conditions were found in adults, we would be justified in the diagnosis of carcinoma. This, however, was not the case in this child. Besides the massage, gentle faradization of the stomach was given every three days. This stimulating treatment was given for several months and the child gradually gained in flesh and its appetite returned.

It is interesting to note that one month after treatment was commenced there was a decided absence of lactic acid and hydrochloric acid was present. The amount of free hydrochloric acid varied. At times it was 0.07 per cent. and now, about one year after treatment, it is 0.09 per cent.

This case clearly shows that the foundation for chronic dyspepsia is laid in infancy and childhood. In the majority of cases the cause is improper feeding. Such improper feeding will cause a distention of the stomach through fermentation, and the muscular walls of the stomach remain abnormally distended, because of their greatly weakened condition.

The investigations of Glenhard, Trastour and Bouchard have shown that dilatation of the stomach is the primary factor inducing auto-intoxication. This lies at the foundation of the majority of acute and chronic maladies.

M. Comby measured the stomachs of eighty nurslings at the Hôpital des Enfants Maladies. Of twenty-six of them from one day to three months old, but six had a small stomach (45 to 80 c.c.), the others had stomachs dilated to 200 to 310 c.c. Of nineteen from three to six months old, four had a small stomach, fifteen a dilated stomach. Of twenty-eight from six to twelve months old, six had a small stomach, twenty-two dilated. Seven others, older, had dilated stomachs. Of these eighty children whose stomachs were examined at autopsy, 80 per cent. had dilated stomachs.

Why this mortality with dilatation of the stomach in hospital nurslings? In addition to being badly cared for, or even abandoned by their parents, before being brought to the hospital, they are invariably fed on poor, cheap milk, perhaps watered with impure water, so that the butter in it is reduced (according to Budin) fifteen to thirteen parts in one thousand. Besides, they are often prematurely fed with soups, porridge, etc. Those that do not overeat to obtain satisfaction for hunger die of slow starvation. The others have large stomachs by virtue of slow dilatation from excess of food and fermentation. The author finds extension of the stomach upward beneath the diaphragm and downward below the umbilicus. These children often vomit the stomach-contents, mucus, clots of milk, bile, and coffee-grounds. Lead-paper will give reaction of sulphuretted hydrogen. The milk will be found undigested in the stomach as long as five or six hours after being taken; there it ferments and produces auto-intoxication and is a ready cause of diarrhea, vomiting, athrepsia, convulsions, etc. If the children recover, their stomachs are left maimed, to cause subsequent dyspepsia in adult life.

When lavage is indicated in children, a No. 6, 8, or 10 soft rubber catheter can be attached by means of a connecting tube to a funnel. It is advisable to siphon off the stomach-contents by pouring no more than two or three ounces of boiled water, to which a pinch of salt has been added, through the funnel. The funnel can then be lowered below the level of the stomach and the contents siphoned off. This process is to be repeated as long as the siphoning brings away debris from the stomach. If this method be carefully followed and gently done, no bad effects can result from the same. It is advisable to wash out the stomach every day in those cases in which no immediate benefit results; on the other hand, if marked improvement follow the first lavage then the same need not be repeated for one week. The point worth noting is that the time best adapted for washing out the stomach is early in the morning before food has been taken.

The following case is also of interest: E. G., eighteen months old, was brought to me with a history of having a poor appetite, being very restless at night and suffering from continual constipation. There are two other children in this family, one seven and one twelve years of age, both of them well.

The mother states that the child has been breast-fed, and also received barley and rice-water, soup and cakes when he was *three months old;* in other words, she supplied artificial food to make up the deficiency which she stated existed in the breast-milk. This child, although eighteen months old, cannot walk, or stand. He has four teeth; there is a distant rachitic kyphosis when the child is sitting. He can say "mama" and "papa," but nothing else. The child appears to be stupid and mentally deficient. Last summer he suffered from summer complaint, which was attributed to his teeth. He has had convulsions at irregular intervals and the mother states that the convulsions are usually associated with vomiting and diarrhea. The child is distinctly rachitic; has a very large pendulous belly; the abdomen is markedly tympanitic on percussion and is distended with gas; the colon is also quite distended with gas; the child has continual eructations and a great deal of flatulence; the appetite is changeable. One day the child will have a large appetite and then for several days will live on practically nothing. No infectious disease and no other disease has appeared until now. A careful inquiry into the cause of the convulsions shows that they are usually associated with gastric fever and regularly follow overeating.

The child was given a cup of tea and a piece of water roll as a test meal. The stomach-contents were then siphoned off for examination. It showed a marked lessening of the normal quantity of HCl. The child had 000.05 per cent. of free hydrochloric acid; there was no lactic acid present. This child was placed on careful diet, consisting of soup, broth, white of egg, buttermilk, zwieback and fruit, and given one drop of tincture of nux vomica three times a day for two weeks. A marked improvement followed the regulation of the diet. I insisted on this child being given an interval of four hours between each meal. *No food was given between meals.* This regularity, I believe, in addition to the light diet and the nux vomica, aided greatly in establishing a cure. Massage of the abdomen and sponging of the whole body with tepid water, followed by friction with a coarse Turkish towel, aided greatly in establishing a good circulation of the blood. The child was under observation and treatment for a period of seven months, during which time no convulsions occurred. Before coming to me for treatment, the child had had convulsions at intervals of every week or two depending on the irregularities in feeding.

Nux Vomica.—Nux vomica in one-drop doses three times a day was frequently ordered when anorexia was present. It was frequently ordered in conditions associated with constipation. No distinct influence on the production of HCl could be noted.

Massage.—Gentle rotary movements over the stomach and over the ascending and transverse colon were frequently followed by an increased appetite. Massage proved beneficial in the majority of cases treated and seemed to stimulate the production of HCl.

Dilute Hydrochloric Acid.—This drug given in doses of from one to five minims several times a day was always followed by marked benefit. It is one of the best antifermentatives that we possess. When a chemical examination of the gastric contents was made it invariably showed an increase of HCl after one week's treatment. It certainly stimulates the peptic glands.

Influence of Fever on Secretion of HCl.—In febrile diseases, such as measles and scarlatina, the secretions of HCl depend on the presence or absence of fever. In measles HCl disappears as soon as the fever disappears. When the fever declines, HCl is again secreted. In scarlet fever traces of HCl can frequently be found. There is, however, generally a total disappearance of the HCl which reappears with the apyrexia; thus, the secretion of HCl is usually absent in febrile conditions. This same condition was also noted in an acute catarrhal gastritis in which the temperature rose to 105° F. The child vomited frequently and had an intense thirst. One of the specimens of vomit, consisting of two ounces, was filtered and examined for the presence or absence of HCl; not a trace could be found. Equally interesting is the condition found in diphtheria. In no case of diphtheria was the specimen procured other than from the gastric contents vomited. It was not deemed wise to use a catheter on an infected area. Free hydrochloric acid was not found. It was found only during convalescence.

Hydrochloric acid was absent in mild as well as in malignant forms of diphtheria. Thus, it appears that the diphtheria toxin seems to inhibit the production of HCl. Behring's theory is that the cells and the cell elements are disturbed in their activity by the action of the toxin and that the antitoxin stimulates their activity. The cell elements are paralyzed by means of the toxin and they fail to functionate until stimulated by antitoxin to reactivity. The truth of this statement must be admitted when we compare what can be easily proven experimentally, that twenty-four to forty-eight hours after the injection of serum HCl was again present in the gastric juice. This has an important bearing on the prognosis of a case of malignant diphtheria.

In the case of a child, Richard Lynch, four years old, ill with diphtheria affecting the tonsils, pharynx and nose and complicated by croup, admitted to the Willard Parker Hospital, 4,000 units of antitoxin were given on the sixth day of the disease. Vomiting appeard two and a half hours after gavage and the specimen was examined by me. There was no HCl present. The child died.

Several specimens were examined in the same manner and when HCL appeared within two or three days after the injection of antitoxin, it was regarded as a very favorable symptom. I must repeat, what I have said before, that in case of diphtheria the specimens were secured when ejected by natural means and not by the aid of the catheter. A child fed by gavage will frequently eject part of the food and in this manner it was not very difficult to secure specimens for examination.

Charles W., eight years old, was seen by me last year. The child complained of intense headache, was very thirsty and feverish; the temperature ranged from 102 in the morning to 103° F. in the evening. Vomiting was a very distressing symptom, occurring five and six times a day; a specimen was examined for the presence or absence of HCl, but no free hydrochloric acid was found. Three days after the child was first seen, an eruption of scarlet fever appeared all over the body. The temperature ranged between 104 and 105° F. for a period of one week, when the nausea and vomiting subsided. Nothing unusual occurred; the child desquamated; convalescence was established and the child permitted to leave its bed at the end of four weeks. I was again asked to see the child for a very high fever, coated tongue, and anorexia. From the history I learned that the child had eaten too many cakes. The child vomited a very offensive, sour-smelling liquid, which on examination showed traces of HCl. The diagnosis of acute catarrhal gastritis was made.

Conclusions.

From the study of a series of cases the following points may be submitted as worthy of note:

1. In atrophic children and in subacute dyspeptic condition HCl could not be found. The organic acids, lactic and butyric were present. Sometimes acetic acid was also found. There was acidity in all anemic conditions, also in that form of disease resulting from malassimilation, known as athrepsia infantum. The motility of the stomach was found to be greatly reduced when such test could be applied. The salol test was delayed for several hours in some instances. It might be of interest to note that salol was frequently given in the treatment of febrile conditions, and in this manner its effect could be noted.

2. In very young infants, especially in healthy nurslings, there is an excess of lactic acid at the commencement of digestion after the sixth month and until the end of the first year. Free hydrochloric acid can be found at the end of the digestive process in the same proportion as it is found in adults. In healthy children over one year, we find free hydrochloric acid in one to one and a half hours after feeding. Most specimens of chyle examined were procured at least one and a half hour after feeding. Some specimens were procured two hours after feeding and still other specimens two and a half hours after feeding.

3. At the beginning of the digestive process, lactic acid predominates; at the end of digestion, hydrochloric acid is in excess. There is a constant antagonism between the lactic and hydrochloric acids. When gastro-enteric disorder existed, in which both stomach and intestines participated, free hydrochloric acid could not be found.

4. The gastric contents of children fed on *raw milk warmed* to normal blood temperature or about 100° F. always showed a better state of digestion than did those of children fed on milk which had previously been subjected to *superheating*.

5. Cheesy curd so frequently found in hard, rubbery lumps *two and three hours* after a meal of sterilized milk, was invariably found more flocculent and less thick when raw milk was fed in place of the sterilized milk.

6. Constipation, which invariably existed when superheated milk was used, always disappeared without medicinal treatment when the milk was subjected to less heating and fed in a manner that corresponds to what Nature teaches us.

7. Breast-milk has a temperature of about 100° F. and cow's milk should never be fed at any other temperature. The more mechanical manipulation milk is subjected to, the greater will be the risk of exposing the same to contamination. Rather than do good thereby, we do positive harm.

8. Careful study of babies fed exclusively on sterilized milk will show systemic defects and subnormal tendencies to infection; their bony structures will be found to be deficient; spinal disease and deformities can be traced to deficient

nutrition, *which was destroyed* by superheating milk while sterilizing and Pasteurizing the same.

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MEDICAL PROGRESS.

MEDICINE.

Hematoporphyrinuria.—The baleful results of the administration of large quantities of sulphonal are shown by rather numerous reports of cases of hematoporphyrinuria. J. Tyson and A. C. Croftan (Phil. Med. Jour., May 17, 1902) report an additional case, which is of value on account of the calculations showing the enormous amount of hemoglobin that may be destroyed. In their case about one-seventeenth of the hemoglobin was destroyed and wasted in the urine during twenty-four hours in the form of hematoporphyrin. Such a loss of blood-pigment sustained for a prolonged period of time will soon lead to severe degrees of anemia. This patient had been taking from 20 to 60 grains of sulphonal nightly for several years, but recovered when the drug was stopped.

A Cause for Intestinal Obstruction.—Cases have been observed which present the symptoms of partial intestinal obstruction, and although there are constant movements of fluid feces, there is no passage of flatus and the distention is constantly increasing. The ordinary methods of treatment are of no avail. A case of this kind is reported by F. A. Packard (Phil. Med. Jour., May 24, 1902) in which he gave eserine salicylate, gr. $^1/_{150}$, hypodermically and repeated the same in two hours. After the second dose a large quantity of flatus and fluid was passed and the abdomen became flat. Death ensued from asthenia later and autopsy showed a malignant stricture of the sigmoid flexure, while the transverse colon formed a loop dipping down to the pelvis. This was filled with fluid and simulated the ordinary plumber's trap, allowing the fluid but not the gas to escape. The author believes that such loops may follow adhesions from any inflammatory condition of the lower abdominal cavity or even from the administration of a hydrogogue cathartic, if the bowel were paretic. Attention is called to the value of eserine in such conditions and in chronic constipation due primarily to weakness of the intestinal wall. Laxatives probably aggravate such conditions. The author has given eserine sulphate, gr. $^1/_{100}$, morning and evening, with success.

Ascites with Solid Abdominal Tumors.—A cause for ascites which is not generally known is noted by W. Osler (Phil. Med. Jour., May 24, 1902). He calls attention to the fact that solid tumors of the ovary are usually accompanied by an ascitic condition and he has also noted it in a case of solid tumor of the mesentery. The question of operation is a very important one; the solid ovarian tumor is usually benign and the cases he has seen have uniformly recovered.

An Unusual Case of Diphtheria.—An interesting case, uncertain as to its etiology until a postmortem examination had been made, is reported by Hunsberger and Bergey (Phil. Med. Jour., May 24, 1902). The patient, a child three years of age, was afflicted with a croupy cough and with signs of what seemed to be a capillary bronchitis. Death took place on the third day, apparently from asphyxia. Sections of the lung after autopsy showed the acini and bronchioles completely blocked with fibrin, blood-cells, and large numbers of diphtheria bacilli. Pure cultures of the bacilli were also secured from fresh specimens of the lung. The authors point to the value of throat cultures in cases with a history of persistent croupy cough even when throat symptoms are absent.

Determination of the Stomach Contour.—A method for determining the inferior and in certain cases the superior curvature of the stomach is submitted by Knapp (Deut. med. Woch., May 1, 1902). It can be employed without the assistance of apparatus. The patient, breathing quietly, assumes the dorsal position on a hard, flat table, with abdomen exposed. The observer standing at the side or at the shoulders brings his eyes down to the level of the abdomen and watches carefully the respiratory waves passing over its surface. After a few trials a delicate transverse line can be detected passing upward during inspiration which corresponds to the curvature of the stomach. The point at which this line stops at the end of an inspiration is carefully marked and is then verified by percussion as follows: Two fingers of the left hand are placed on the abdomen and closely approximated with the marked line between them. Very delicate alternating percussion over both fingers should elicit different percussion notes. The greater curvature can thus be determined and in ptotic conditions the lesser curvature also.

Blood-examinations in Diagnosis.—Without seeing the patient one would not be justified, writes C. F. Martin (Montreal Med. Jour., Mch., 1902) in making a diagnosis from the blood alone, even in chlorosis, pernicious anemia or leucemia. The blood-picture of chlorosis may be due to constipation, general debility, nephritis, lues or general tuberculosis. In pernicious anemia the variations from the type are so wide and numerous that one can scarcely speak of its having a pathognomonic blood-state. The greatly altered shape and size of the red blood-cells, the high color-index, the nucleated red cells, especially megaloblasts, often are not all found, or at least not till long after the clinical diagnosis is made. Some also regard the presence of megaloblasts in carcinoma as by no means of great rarity. In Cabot's 110 cases, 31 showed no high color-index. In 24 cases at the Royal Victoria Hospital the color-index was plus in only 6, low in 5, normal in 5, and in the remaining 8 increased at times during the course of the disease and decreased at other times. While often the red-cell count was below two millions, it frequently reached nearly normal. In some cases of sarcoma and of pertussis, a lymphocytosis of over 100,000 is recorded, so even leucemia is not certainly determined by a blood-examination. At times, too, during a remission of the leucemia, the blood may return nearly to normal. In regard to leucocytosis, many cases of appendicitis, typhoid perforations and obscure pus-formations have been accompanied by normal leucocyte-count, while simple catarrhal inflammations have occasioned a leucocytosis (say 18,000). Generally, however, 20,000 leucocytes would mean pus in a surgical condition, though an absence of leucocytosis might accompany extensive suppuration. The positiveness of the Widal test, the finding of plasmodium malariæ, and the discovery of bacteria in the blood are well understood, but the other blood-examinations are merely corroborative or negative and their interpretation must be made with caution.

A New Method of Percussion.—The value of percussion in the examination of patients has been recognized for many years and various methods of applying it have been devised, of which two in general principle remain, the digital and the instrumental. Instrumental percussion, in which a small hammer with a suitably-padded head and an ivory shield are used, gives on the whole much better results than the other, so far as the mere character of the note sounded at each blow is concerned. There is, however, one element of vital importance which has caused it to fall into second place, compared with the digital method—it does not permit the examiner to perceive the varying degrees of resistance under the finger. This very element of resistance is most important in determining the character of the mass beneath the examining hand. J. PLESCH (La Sem. Méd., Apr. 23, 1902) has sought to improve the note obtained by the digital method without sacrificing this element of perception of resistance. This he has apparently succeeded in doing by the following ingenious and simple procedure: The finger of the left hand, instead of being laid flat upon the part of the body to be examined, is opened at right angles at the joint between the proximal and the middle phalanx, and the ball of the finger thus flexed is applied to the desired point, while the index and ring fingers on either side help to support the middle finger in this position. If, now, the blow be struck over the knuckle of the finger, it is transmitted to a single point of the patient's body and in a way to bring out a note almost as good as that obtained with instruments.

Morphine-poisoning and Normal-salt Solution.—It is well known that dilution of poisons in the blood, otherwise fatal, is a very ready means of saving life. No better example can be furnished than that of blood-letting followed by saline infusion in cases of attempted suicide by illuminating gas. The infusion of salt solution was recently employed with apparently marked success by E. F. WILLOUGHBY (Lancet, May 10, 1902) in a case of morphine-poisoning of remarkable severity, since the patient had taken eight grains of the drug without having acquired any previous tolerance. For several hours continuously the ordinary well-known means of treatment were employed without much success and finally a saline infusion was given. Immediately afterward the patient began to improve and from that moment on recovery was assured. The observer feels that this step, together with the administration of permanganate of potassium by mouth and by rectum for the purpose of breaking up the morphine eliminated through the digestive tract, was probably chiefly responsible for the patient's recovery.

Embalming the Dead.—It often happens that the only person in a small community available for preserving a body is the physician, although, of course, this duty belongs to the undertaker. There may be none at hand soon enough to do it properly. For this purpose the following simple suggestions are offered by J. G. GARSON (Lancet, May 10, 1902): In temperate climates the best period for embalming is about twenty-four hours after death, when as a rule rigor mortis has nearly or totally passed off and the tissues have become relaxed, but no marked signs of putrefaction have begun to appear. The presence of such putrefactive changes is not, however, any bar to the operation, by which not only will the further progress of these changes be at once stopped, but the parts which have become affected will often greatly improve and sometimes become restored to their natural appearance. Having informed himself as to the purpose for which the embalming is required the operator has to determine upon his plan of procedure and the composition of the solutions to be used. Both are points of considerable importance. Regarding the plan of procedure one must consider whether the work is for temporary or permanent preservation of the body. It must include the introduction into the tissues through the blood-vessels of a suitable preservative fluid and the external application of the same to the surface of the body. The latter is necessary to prevent the tendency which the epidermis has to separate from the dermis. Gas or fluid in the abdomen, thorax or elsewhere should be removed and the preservative injected in its place. To enable the different parts of the process to be performed with facility the body should be placed on a long narrow table like an ordinary surgical operating-table. Some artery must be selected through which the injection is done. The femoral in Scarpa's triangle is commonly chosen or the brachial just below the armpit. Better than either in the opinion of this author is the abdominal aorta, which after death lies almost in contact with the anterior abdominal wall and can be reached through a small incision just below the navel. While the abdomen is open through the same wound the thorax can be very conveniently and efficiently filled with fluid and likewise the abdomen itself, if necessary. The progress of the embalming-fluid through the large veins of the abdomen can also be watched. If the wound be carefully closed afterward no objection can be raised to it by any sensible family. The fluid is forced by air-pressure, by means of a pump and cylinder, or, preferably, by hydrostatic pressure. To obtain this the vessel containing the fluid is raised to a height sufficient above the body to maintain a slow even flow. No matter what plan is followed, it must be remembered that the blood-vessels after death rupture with comparative ease. After this accident the continuation of the process is very difficult. Of the simpler embalming-fluids this author recommends the following: Bichloride of mercury, chloride of zinc, or chloral; the bichloride of mercury is upon the whole the best and least expensive. The strength he employs is at the early stages of the process two grains of the bichloride of mercury to each ounce of the injecting fluid. The basis of the fluid he makes methyl alcohol in order to obtain its desiccating influence. After putrefaction has been begun the strength of the solution must be considerably increased. He has found that about nine liters (2 gallons) for an adult male or five liters for an adult female are as a rule the proper quantity. Hence the formula for an adult male would be 640 to 900 grains of bichloride of mercury, 10 to 80 ounces of glycerin and 2 gallons of methyl spirit. There are several other means of accomplishing this object which are less simple and this one is mentioned only because it is easy to remember and the materials are easily purchased and prepared.

Diabetes Insipidus and Paralysis of the Bladder.—A case of diabetes insipidus presenting some unusual features is described by C. POSNER (Berl. klin. Woch., May 12, 1902). The patient, a man forty-eight years of age, had had great thirst and frequent urination for six years. After that time he began to feel uncomfortable in the region of the bladder. It was found that urinary retention existed, over two liters of residual urine being present after the voluntary discharge of 250 cubic centimeters. Systematic catheterization became necessary. Four to six liters of urine were secreted daily, of which one-fourth was voluntarily discharged, the remainder being drawn by catheter. The patient had never had gonorrhea and had no urethral obstruction; the prostate was normal. Disease of the central nervous system was suspected, but no evidence of tabes or myelitis of the lumbar cord could be found. The urine had a specific gravity of 1002 to 1004; some pus was present (after frequent catheterization) and a corresponding trace of albumin; there were no casts. Neither by massage, faradization, nor frequent relief of the bladder by the use of a catheter could the tone of the bladder be restored. Internal medication with a view to the reduction of the quantity of urine failed. The paralysis of the bladder may have been due to degeneration of the musculature, but no such case is recorded as occurring in a patient so young. The loss of tone might reasonably be regarded as the direct result of the polyuria. Posner considers it more probable that the polyuria and paralysis of the bladder are joint effects of a common cause. Diabetes insipidus is generally regarded as a nervous affection, having its seat in the medulla oblongata, in the vicinity of the fourth ventricle. Cases are reported in which hemiplegia, facial paralysis, disturbances of the trigeminus were associated with polydipsia and polyuria. If disease of one part of the central nervous system may be associated with polyuria, why not disease of another? Enuresis, involuntary urination, occurs in association with both diabetes mellitus and diabetes insipidus; this also is probably a sign of nervous weakness. Obstipation was present in Posner's case, permitting the hypothesis of an associated paresis of the intestine.

Paranephritic Hematic Cyst.—Shortly after marked purgation a young woman presented signs of illness which led to the diagnosis of perforative appendicitis. The patient was seen by M. WALTHER (La Presse Méd., May 3, 1902), who preferred to regard the case as one of internal hemorrhage. Examination under chloroform revealed the presence of a large tumor in the right flank, close to the normal site of the kidney. Lumbar incision exposed a huge hematic cyst occupying almost the entire lumbar region; the contents included over a quart of liquid blood and some large clots. This cyst was situated above the upper pole of the kidney, the latter being crowded downward and backward. There was no fresh hemorrhage at the time of the operation. The wound was drained and recovery followed without complications. Microscopically the wall of the cyst was found to consist of fibroconnective tissue without a trace of epithelium; hence the cyst was probably paranephritic and not a cyst of the suprarenal body. The pathogenesis of the case remains obscure. There was nothing in the history to lead to the diagnosis of traumatic hematoma.

Purpura Metamerique.—Without the aid of a blood-examination, it would have been impossible to say promptly whether a case described by H. ROGER (La Presse Méd., May 10, 1902) was variolous or purpuric. The patient, a woman thirty-four years of age, became suddenly ill, complaining of headache, lumbar pains, and malaise. Two days later an eruption appeared in the groins, and within forty-eight hours from the time covered the gluteal region, the axillæ and the major joints. The eruption consisted of hemorrhagic points of pin-head size, which did not disappear under pressure, and which in places were almost confluent. A similar rash is described by Roger as occurring in cases of variola, and the latter disease was considered for this reason and because the patient had last been vaccinated twenty years before her illness and had been exposed to smallpox only a short time before her eruption appeared. The patient however, felt comparatively well. Her temperature four days after the appearance of the rash was 38° C. (101.3° F.). No papular nor pustular element could be found. On the sixth day the purpuric eruption was general, covering all but the face; it was less abundant posteriorly than anteriorly. The general condition of the patient continued excellent; the temperature was now normal; pruritis had disappeared. On the tenth day the eruption began to fade; on the seventeenth day no cutaneous sign remained. The patient was unsuccessfully vaccinated on the fourth and tenth days of her illness. Examination of the blood was made with a view to determining the presence or absence of the large number of granular mononuclear leucocytes which, according to Roger and Weil, Courmont and Montagard, are present from the very onset of variola until convalescence is far advanced. The leucocyte formula was normal; myelocytes were not present. On account of the minuteness and systematic arrangement of the hemorrhagic spots, Roger suggests that the case might appropriately be called *purpura minutissima métamérique.*

SURGERY.

Plastic Operations on Tendons.—The success which has attended the operation of tendon transplantation has caused certain shortcomings to be overlooked; for undoubtedly the increased force gained in one part must be offset by a corresponding loss of power in another. This situation has led, especially in paralytic conditions, to a substitution for the usual tendon transplantation method, namely, the implantation of certain tendons into the periosteum, so as to bring about a passively normal attitude of the affected part. J. WOLFF (Deut. med. Woch., May 1, 1902) suggests going a step further by forming a new bone insertion instead of a periosteal one. A groove is cut at a selected point, the cut tendon laid in it with the end projecting slightly, and the periosteum sutured over it. The projecting end is also sutured to the neighboring periosteum. This condition is considered to approximate closely the normal insertion of the tendon. The author has employed the method in five instances. In two cases of paralytic equinovarus he cut the tendons of the tibialis anticus and the extensor longus hallucis at a point about one-third of their length from the insertion and fixed the ends in grooves on the cuboid and the tuberosity of the fifth metatarsal. The tendons of the extensor communis digitorum were at the same time correspondingly shortened. In a case of paralytic pes valgus he fixed in a similar manner the tendons of the peroneus longus and brevis in a groove on the scaphoid. The successful issue in these cases also led to the trial of another method in which the power of the antagonizing muscles was entirely disregarded and the particular muscles were employed which originally subserved the function in question. Thus, in a second case of pes valgus he inserted the shortened tendon of the tibialis anticus into the inferior surface of the scaphoid and in a case of radial paralysis fixed the tendon of the extensor carpi ulnaris into the base of the second metacarpal, the hand being kept in a position of strong flexion and supination. The results, as to both motion and position, were excellent.

Fixation of a Movable Liver.—From an examination of the literature of this subject, J. H. CARSTENS (Jour. Am. Med. Assoc., May 17, 1902) has found 98 cases reported and believes that an injury, a severe fall, or heavy lifting, or, in a few instances, the development of a malignant growth in the liver, is the usual cause. The prominent symptoms are distress and feeling of weight in the region of the liver, often considerable tympanites and intestinal indigestion, alternating constipation and diarrhea, marked nervous symptoms (headaches, restlessness, hypochondriasis, etc.). Tight bandaging with proper tonic treatment, usually affords relief. Few attempts at operative interference have been made. The author reports a case, that of a woman, forty-eight years of age, weighing 220 pounds, in which these symptoms were noted. The thick abdominal walls prevented examination. When the abdomen was opened the right lobe of the liver was found to be prolapsed into the pelvis. The liver was replaced, corresponding areas were denuded of peritoneum on the anterior surface and the parietes, and the raw surfaces were brought together. The coronary ligament was then stitched to the upper angle of the wound. The patient made a good recovery and remained free from symptoms.

Gunshot Wounds.—Some interesting observations on the healing of gunshot wounds have been made by a field surgeon in South Africa, A. A. Martin (Quart. Med. Jour., Brit., Vol. X., No. 3). He notes the frequency with which the scars take on a keloid character, the wound healing well. In one ward eight out of twenty-five cases had keloid scars, some large and increasing rapidly, others small and stationary. The most obstinate gunshot wounds to treat were those in which important nerves had been torn by the bullet, or in which the nerves had escaped the bullet, but were caught in adhesions of the closing wound.

Glycosuria and Diabetes.—Sugar in the urine has for many years been the *nole me tangere* of surgery. Recently, however, the subject has been looked into with a more critical spirit and the following distinction among the various cases of this condition is made in about the following terms: (1) Those in which glycosuria is caused by the surgical lesion. (2) Those in which it causes the surgical lesion. (3) Those in which the two are independent of and do not influence each other. (4) Those in which it exerts a baneful influence upon the other disease or the injury. Furthermore, glycosuria may be merely temporary apart from the surgical disease or injury, as after certain drugs, notably opium and chloroform (toxic form), or it may be of alimentary origin. A diagnosis is often impossible, because transitory glycosuria may pass imperceptibly into true diabetes. Concerning the first class, glycosuria is noted as a complication in a great variety of surgical ailments and injuries, which fall under two main groups, injury and sepsis. Redard classified them into the following groups: (1) Injury of the central nervous system, (2) other injuries, like fractures and operations, (3) inflammation, (4) cellulitis, lymphangitis, and erysipelas, (5) carbuncle, (6) gangrene, (7) septicemia. The second class includes patients in whom surgical disease is caused by the glycosuria. Such are probably very rare. Legendre, however, has collected 102 reports of operations for cataract, apparently of this origin, with 99 successes. Thus the mortality in this class as illustrated by such diseases as cataract is very low. Independence of each other as to the medical and the surgical disease is noted in the third class. For convenience the following groups and their statistics are made: Operations on the face and mouth give a total of 16 with 11 recoveries or a percentage of 68.75. Of the mouth-and-lip cases, 12 with 9 recoveries, making a percentage of 75. Operations on the breast reach a total of 19 patients, 13 of whom recovered, with a recovery percentage of 86.6, while the percentage of successful operations was 89.47. Operations on the female generative organs, 24 in number, occasioned 5 deaths or a percentage of 76.25 of recoveries. Successful operations were 79.16 per cent. The plastic operations were particularly successful. Operations on the male generative organs were very unpromising. Six operations lost three patients, or a total of 50 per cent., but in two of these no precautions were taken against diabetic coma. Abdominal operations other than those on the generative organs and the bladder, 15, with 11 recoveries, or a percentage of 73.3. In the fourth class, in which the diabetes is known to exert a baneful influence upon the other disease or injury, it is manifest that the operative results will be less promising. It is interesting, however, to note as the principal point that the former fear of sugar in the urine is somewhat outgrown.

The Latent Period in Abdominal Inflammation.—Any one who has had opportunity to observe any of the grave abdominal inflammations has had occasion to note that in a large number of them there comes a quiescent or latent period which always deceives the patient and may throw the attending physician off his guard by indicating improvement, when as a matter of fact it is always a sign of danger. There is probably no disease in which this is more emphatically true than in appendicitis, when after gangrene or rupture of the appendix has set in the patient has comparatively little pain for a few hours and feels much better. A. H. Tubby (Lancet, May 10, 1902) presents an interesting paper upon this subject, enumerating the common conditions during which it may be expected. These are in his opinion the following: Traumatic rupture of the intestine, perforating ulcer of the intestine or stomach, injury to the peritoneal connections of the viscera, acute diseases of the genital organs, especially in women, and acute appendicitis. The symptoms which he considers should always be looked after in these diseases as guides to what the real state of the patient is are these: The pulse and temperature may rise together in due proportion, or there may be little fever with feeble pulse, or a sub-normal temperature with an exceedingly rapid pulse. This last of all is the most important single indication for immediate operation. In perforating ulcer of the duodenum and stomach the best single symptom calling for interference is rigidity of the abdomen with tenderness. Distention, even moderate in degree, is likewise of special importance, particularly when it persists after enemata have been given. Vomiting is apt to be absent during the quiescent period, especially if it appeared with the beginning of the trouble. If it reappears in spite of good feeding, nursing and treatment, its importance cannot be overestimated. The preponderating significance of leucocytosis is to any modern man almost a self-evident proposition. Lastly the complicating symptoms which are referable to the chest always call for exploration. There can be no question that suitable knowledge of all these points will decrease the death-rate now ascribed to operation, because the patients will be brought to the surgeon when the hope of saving them is greater.

Diseases of the Rectum Due to Gonorrheal and Syphilitic Infection.—Cases of rectal disease usually present themselves for treatment when the pathological process is well advanced. The majority of such cases seen by Prof. König in Berlin occur in women (Berl. klin. Woch., May 5, 1902). The patients complain of tenesmus, of severe pain during and after defecation, often of constipation. Pus and blood precede and follow every movement of the bowels. Gonococci are rarely found in the purulent discharge. Reduplications of the skin about the anal opening may or may not be present. Within the anus various alterations occur in the rectal mucous membrane, and these changes may be confined to the pars sphincterica or may extend well up into the ampulla, or even as far as the sigmoid flexure. The rectal wall may contain ulcers with thick walls; the lumen may be markedly contracted, refusing to admit the examining finger; the thickened and contracted rectum may often be distinctly palpated, a cord-like mass, through the vagina; following the period of acute inflammation the perirectal tissues, which often share in the inflammatory process, became adherent to the thickened rectum, the latter containing dense masses of scar-tissue. Perirectal abscesses form during the inflammatory stage and are followed by stubborn fistulæ. Febrile cases characterized by anorexia and emaciation in addition to the local symptoms are not rare. Severe cases of ileus may have their origin in the disease just described; a fatal peritonitis is occasionally the result of suppurative perforation of the upper part of the rectum. The majority of these cases of rectal infection are of gonorrheal origin; a few are syphilitic. König has never been successful in his attempts to treat these cases internally and by inunction as cases of syphilis. The stricture of the bowel is an important feature; a collection of pus is formed above the stricture and new ulcerations are thus favored. The stenosis may be treated by bougies if localized near the anal opening, but if it extend beyond the sphincter tertius it cannot be treated in this way, nor can methods of dilatation be employed during the period of diseased mucous membrane, abscesses and fistulæ. If the disease be limited to the region of the sphincter, circular resection can be practised. König describes this operation, performed successfully in three cases. In more extensive cases, presenting ulcers, abscesses, fistulæ, cicatricial stenosis, etc., and involving the upper part of the rectum, König regards all treatment as destined to failure unless it begin with colostomy and so afford rest to the diseased rectal mucous membrane. Only rarely can the artificial anus be afterward dispensed with. If the rectum present extensive ulcerations and cicatrices with stenosis at the time of operation, it will contract still further when deprived of its function, and, though it may heal, it will become permanently useless.

Arterial Hyperemia and Regeneration.—That the repair of wounds is accompanied by a hyperemia of the tissues in the immediate neighborhood of the wound is a matter of ordinary clinical observation. ERWIN LIEK (Archiv f. klin. Chirurgie, May, 1902) found that arterial hyperemia favors regeneration of tissue. He caused an artificial hyperemia of the lobe of the left ear in dogs, by dividing the left sympathetic nerve in the neck. Similar superficial wounds were inflicted on both ears. The one on the left ear healed more quickly in every case. The same was the case with deep wounds with considerable loss of tissue.

Paraffin Injections to Correct Nasal Deformities.—A simple and apparently successful method of improving the appearance of deformed noses has been used during the last two years, having been first tried by Gersuny of Vienna. H. SMITH (N. Y. Med. Jour., May 17, 1902) reports three cases in which he has obtained very satisfactory results. Experiments upon animals show that there is no inflammatory reaction on the part of Nature and only a slight attempt at encapsulation. The paraffin used has a melting-point of 98.6° F., and is injected at a temperature of about 115° F. The area is cocainized and then the paraffin is slowly injected, the point of the needle being beneath the site of greatest deformity. The paraffin remains plastic about half a minute and can be molded as desired during this time. The pain experienced is very slight and swelling usually disappears within a few days. Some care must be taken to prevent the paraffin passing inward toward the canthus of the eye. Paraffin prosthesis is not confined to the nose alone, but is being used after mastoid operations for filling in excavations immediately after the wound has been closed.

Surgical Treatment of Nephritis.—Founded upon the knowledge that cirrhosis of the liver is frequently relieved by operative interference, the surgical treatment of nephritis has been urged with the belief that if collateral circulation can be established around the kidney the symptoms of nephritis will be greatly diminished or will entirely cease. Edebohls was probably the first to decapsulate a kidney and attach it to its fatty capsule with the sole idea of treating a chronic nephritis. He had previously noted the beneficial results in such cases when operated upon for movable kidney, and concluded that the improvement was due to the increased circulation. R. GUITERAS (N. Y. Med. Jour., May 17, 1902) has recently operated upon three cases, but is unable as yet to draw any conclusions from them. He believes that the literature upon the subject would seem to indicate that nephropexy is always a beneficial procedure in a movable kidney in a patient suffering from chronic nephritis and that nephrotomy has proven to be a valuable operation in unilateral chronic nephritis associated with hematuria and nephralgia. The value of complete decapsulation of the kidney as a therapeutic measure in chronic nephritis has not yet been determined, for it has not yet become extensively employed.

Radiotherapy for Cancer.—Sufficient work has not yet been done to enable one to draw very valuable conclusions in regard to the possibilities of this line of treatment in malignant disease, but it has already been proven that much benefit is frequently obtained and the hopes for the future are exceedingly bright. W. J. MORTON (Med. Rec., May 24, 1902) believes that the effect of the X-ray in the cure of disease is due to a primary chemical reaction, affecting in turn the metabolic processes. Considerable skill is necessary in order to manage these exposures properly. Instead of ceasing treatment at the end of about two weeks, by which time a dermatitis is usually induced, the author very carefully avoids too great a reaction, but continues the exposures and endeavors to cause a sort of "tanning" of the skin which, when induced, will allow a much longer exposure without any harmful results. He has used this method of treatment in both external and internal growths and has obtained some very remarkable results. Even in operable cases he frequently employs this method in order to clear up certain outlying nodules and to cause the tumor to become more circumscribed. Furthermore, it may be used after operation to preclude the possibility of a recurrence.

Subarachnoidean Anesthesia.—After having employed this method of anesthesia upon 120 cases, S. TSAKONA (Gazette de Gyn., Apl. 15, 1902) declares that it has proved a complete success. It is past the stage of experiment and is now entitled to a place among the other recognized methods of anesthesia. The author does not believe that the two fatal cases reported by Tuffier were due to the cocaine, as both cases had serious heart lesions and undoubtedly died from shock. The hue and cry about ulterior effects upon the cord and its membrane are not justifiable, but are simply the objections of the jealous and of the ignorant. The symptoms described as resulting from the injection of cocaine are the results of faulty preparation of the drug and of bad technic. The doctor urges the importance of rapid operation under this form of anesthesia and the necessity of careful asepsis.

Arteriovenous Aneurism.—Anything from the facile pen of that great British master of surgery, Sir Frederick Treves, is always welcome—partly because of its worth, partly for the sparkling and vivacious English in which he couches his remarks. The leading article in the British Medical Journal (May 10, 1902) is a résumé of four cases of arteriovenous aneurism which he gleaned from the veldt during the Boer war and upon which he subsequently operated in England. Aside from the technic of the operation his remarks as to the increased frequency of the lesion are very opportune. It appears that of late years it has been almost unknown. This was due to a cessation of "bleeding" at the median basilic vein and to the fact that daggers are now much less used in the settlement of street brawls than they were forty years ago. Within the last three years, however, since the various "civilized" wars have been in progress, the ordinate curve which graphically represents this injury has taken a sudden leap upward. This is due to the use of the small-caliber high-velocity bullets. Spontaneous cures in these cases does not occur, but the death-rate from neglected cases is not nearly so high as that found in the usual arterial aneurism. Local trouble, such as gangrene and rupture, is rare, but functional disturbances are common. An almost solid edema, which merits the name of elephantiasis, is not unknown and the part always becomes so useless as to cripple absolutely the individual. The diagnosis of the precise character of the arteriovenous communication—whether it be a true aneurism or an aneurismal varix—is practically impossible. Each has the harsh buzzing bruit, the vibratory thrill, the tense deeply fluctuating tumor, the indefinite outline. The treatment of all cases consisted in proximal and distal ligature with removal of the sac, if present; in the case of a varix it was left. All the patients were fully and permanently cured.

PATHOLOGY AND BACTERIOLOGY.

The Staining of Mast-Cells; Remark on the Percentage of Mast-Cells in the Human Blood.—The number of mast-cells in normal blood is ordinarily stated as less than ½ per cent. of the total leucocytes. L. B. Goldhorn (N. Y. Univ. Bull., Apr., 1902) has reported hundreds of cases as containing less than ½ per cent. of mast-cells, but recent experiments with improved staining methods lead him to believe that the normal average percentage is over .75. To many blood-workers the well-stained mast-cell is a novelty, because stains usually employed do not clearly show the granules present in these cells. The solution ordinarily recommended is Ehrlich's dahlia, in which the fixed smear is immersed for several hours, washed and decolorized in alcohol. Jenner's stain shows mast-cells, but is apt to precipitate the smear; this precipitate can be dissolved in alcohol. Goldhorn declares that in order to demonstrate mast-cells it is only necessary to saturate wood-alcohol with dahlia or methylene blue and to pour this solution on a freshly-made smear without previous fixation. The preparation is washed in water for a few seconds and dried in air. The most important details of leucocytes are shown by the use of the following simple solutions: Saturate wood-alcohol with methylene blue and immerse the blood-smear in this for fifteen seconds. Wash in water and stain in 1/10 per cent. aqueous eosin for from fifteen to thirty seconds. Wash and dry in air. Bone-marrow may be successfully stained in this way. It was while using this dye that Goldhorn so frequently encountered mast-cells that he was led to make differential counts and discovered that the prevailing idea of the percentage of mast-cells present in health is erroneous.

On the Existence of Leucomains of Diabetic Origin.—Dr. Dominicus was perhaps the first to suggest a toxic action in diabetes, due to a special substance produced in the intestine on account of the lack of normal pancreatic juice. He supported his contention by injecting into the peritoneum of a healthy dog feces obtained from a diabetic dog and macerated in alcohol and water; by this means glycosuria was produced. But such experiments could not prove the existence of toxic substances in diabetic blood. More recently Leo has produced a glycosuria in dogs by causing the ingestion of diabetic urine or of an extract of such urine. As a control normal urine to which sugar was artificially added was employed. Evidently diabetic urine contains an unknown toxic substance. R. Lepine (Berl. klin. Woch., Apr. 21, 1902) has repeated Leo's experiments and reports that similar effects can be obtained by the use of non-diabetic urines, notably those of patients having pneumonia. By Gautier's method Lepine and Boulud obtained from blood leucomains which, dissolved in water and injected in minute quantities under the skin of guinea-pigs, produced a more or less lasting glycosuria. While extract of the blood of a normal dog may produce a transient glycosuria, that obtained from the blood of a depancreatinized dog yields a glycosuria of a much more durable nature. Part of the function of the normal pancreas is the destruction of diabetogenic toxic substances.

Bacteriology of Acute Rheumatic Fever.—In summing up the main points of the present position of the bacteriology of acute articular rheumatism, A. J. Lartigau (Albany Medical Annals, May, 1902) formulates the following conclusions: (1) Acute articular rheumatism is an infectious disease very probably induced by a specific bacterial excitant. (2) The claims of Achalme and others that the infection is attributable to an anaerobic bacillus have not been sustained and are very probably untenable. (3) The correctness of the contention advanced by Singer that the disease is a modified pyemia is very doubtful. It is probably much safer to say that secondary infection with pyococcal bacteria is common in this disease. (4) The diplococcus isolated by Wasserman, Poynton and Payne, and several others, is probably a modified streptococcus. All of the inoculation results induced by this assumed specific diplococcus may be obtained with the streptococcus pyogenes. The demonstration of this organism, then, as the causative factor of rheumatic fever is incomplete. (5) The specific bacterial excitant of the disease still remains to be discovered.

Etiology of Cleft Extremities.—By cleft hand is meant, according to Kümmel, a partial or complete division of the middle fingers which may or may not extend to the carpus. C. Penthus (Deutsch. Zeit. f. Chirurgie, March, 1902) gives a very full account of a Chinese patient in whom the defect was very marked. Drawings show it to have been almost absolutely symmetrical in both hands and feet. In discussing the etiology of this condition he has gone very fully into the literature of the subject. One of his most interesting conclusions is that the defect is almost always inherited from the father. There are two great classes of causes, *i. e.*, so-called internal, or endogenous, and external or exogenous. The latter, being mechanical in character, is not difficult to grasp. It depends upon an abnormal production of amniotic fluid, sometimes there being almost an absence, at other times a great excess. Either of these conditions may give rise to localized points of pressure over the tender processes which give origin to the extremities; nevertheless it is not possible to conceive of such points being so symmetrically distributed as to stultify all four extremities in exactly the same manner. Obviously it is necessary to presuppose the existence of an inherited tendency to malformation in the so-called endogenous type. Another curious factor about the exogenous injuries is that, inasmuch as it is transmitted from the father, it is not clear how variations in the amount of amniotic can be traceable to him, whether the fluid take its origin from the mother or from the child. Attempts have been made to explain these malformations on atavistic grounds, but, while it is not difficult to do so in the case of polydactylism, one finds an immediate difficulty in the case of cleft extremities, inasmuch as the ancestral type is definitely shown to have had more than five fingers. It seems that all cases of symmetrical malformations, particularly those in which the digits are lacking, are to be referred to endogenous causes. This is merely an expression to denote one's ignorance of the real etiology. It is as difficult of approach as is the explanation of why an egg and a spermatozoön should unite to form a man.

Germicidal Action of Sublimate in the Blood.—The intravenous injection of sublimate has been suggested for various diseases dependent upon the proliferation of germs in the body. Recently Bacelli has recommended it for the foot-and-mouth disease of cattle. It was thought that the strong germicidal action of the drug would be manifest to the same degree in the blood-stream as it is in the test-tube. A. SERAFINI (Münch. med. Woch., Apr. 22, 1902) selected anthrax for his experiments, because in this disease multiplication goes on directly in the blood and thus the most suitable conditions for testing the correctness of these views would be afforded. Rabbits were injected subcutaneously with the cultures and large doses of sublimate were introduced into the veins eight and a half, sixteen and twenty-four hours later. In other rabbits the bacteria and the antiseptic solution were both injected into the veins within a few minutes, but no matter how the experiments were varied the rabbits all died within approximately the same time as did the control animals and many highly virulent germs could be isolated from the blood. The same results were obtained with the bacillus of fowl-cholera. Unless a specific action of sublimate exist, as in syphilis, it thus seems that little benefit can result from such treatment, probably because the dilutions which safe doses bring about with the blood are too great and less effective proteid combinations too readily form. The author is thus inclined to doubt the results of Bacelli in foot-and-mouth disease, for he can explain them only upon assuming a special vulnerability of the unknown germ of the disease to sublimate, which, in the present experience of bacteriology, seems doubtful.

Pathogenesis of Chloroma.—That a given disease is one of extreme rarity is no reason why its observation should be uninteresting. H. G. MELVILLE DUNLOP (Brit. Med. Jour., May 3, 1902) presents in very great detail the history of a typical case, the description of which is rendered very graphic by the introduction of admirable photographs. Chloroma is an exceedingly rare disease; many surgical text-books omit a description of it. But twenty-seven cases are recorded; and, inasmuch as the condition is one which on section is unmistakable, though the diagnosis is very difficult during life, it is probable that almost every one in which an autopsy has been done is accounted for. The disease consists in the rapid, almost fulminating, development of tumors from the periosteum of the head and face. Coincidental with their development metastases are planted in every nook and cranny of the body. The singular phenomenon in connection with this general distribution is that the entire nervous system invariably escapes. No secondary growth has ever been seen in any part of it. Meantime the primary focus on the face is not idle and huge tumors develop, the center of growth seeming to occur in most cases within the orbit, and there is absolute destruction of the supporting framework, absorption of the temporal muscle and filling of its fossa with pronounced and destructive exophthalmos. In fine, all the bones of the upper face and of the anterior floor of the skull are ultimately converted into this peculiar green tumor. Inasmuch as these growths cause symptoms which in almost all details resemble leucemia, and because their microscopical appearance supports this view, they are now pretty universally held to belong to the lymphosarcomata. The source of the green pigment has called forth a very keen discussion. It varies from a yellowish to a bright grass green and fades to a dirty brown a few moments after the section has been exposed to the air. The green has been ascribed to decomposition, but this is out of the question. Virchow, Dressler and Chiari are one with Huber in believing that the color arises from fine adipose granulations which are found in great numbers in and among the cells. In view, however, of the disappearance of the color in air and on immersion in fluids that do not dissolve fat, it is much more probable that the color is due to some unnamed compound allied to lipochrome. The prognosis of this rare condition is absolutely bad. Exhaustion kills on an average in from five to six months.

The Secretory Energy of Diseased Kidneys.—The total daily work performed by the kidneys during the conditions of acute nephritis and amyloid degeneration is, according to the researches of F. LOETBEER (Hoppe-Seyler's Ztft. für physiol. Chemie, Apr. 17, 1902), less than normal. In interstitial nephritis, when there is a sufficient supply of water, the work corresponds periodically to that performed by normal kidneys; nevertheless the regular excretion of uric acid does not occur in this condition. If one consider the excretion of water as the measure of renal activity and not as a means for the elimination of the solid constituents, in the condition of interstitial nephritis the work performed would be greater than normal. Acute nephritis and amyloid degeneration show an irregularity in the elimination of all the mineral constituents; indeed, from day to day this irregularity varies between the limits of retention and excessive elimination. At the same time the excretion of the nitrogenous constituents shows a more constant retention. The latter indicates a real insufficiency of the parenchyma. The fact that the mineral constituents, although varying, are secreted in sufficiently large quantities, proves that they are not the cause of uremia. One should rather look to the continuous and persistent retention of nitrogenous bodies in the tissues as the cause of the complex clinical manifestations of uremia.

Tetanus Toxin.—Many authors have sought to ascertain whether or not the toxins of tetanus were present in the organs of those who die of tetanus. P. PASQUINI (La Riforma Medica, Apr. 25 and 26, 1902) reviews the work done in this line of research and gives the results of an extended series of experiments personally conducted. The technic of the work is thus described: Guinea-pigs were inoculated with a small quantity of tetanus culture and immediately after death the organs were excised, triturated in a mortar with sterilized sand, then submitted to a pressure of 400 atmospheres by means of Buchner's press; the substance so extracted was treated with sodium carbonate, 1 to 2 per cent.; the solution was precipitated with alcohol; the precipitate was dried, and 4 grams of it injected in the dorsal region of a guinea-pig. Kidney, liver, lungs, heart, muscle, mesenteric and subcutaneous glands, brain and spinal cord were used in the experiments, the results being negative in all, except from injection of extracts of brain and cord, which alone induced symptoms of tetanus. The author therefore concludes that the toxin of tetanus is demonstrable solely in the nervous system of animals immediately after death from tetanus. The same experiments were repeated from twenty-four hours to three days after death of animals inoculated with tetanus, and in a few instances positive results were obtained from extracts of kidneys, muscles, heart, etc.; but in these cases the tetanus bacillus was, with few exceptions, demonstrated at the site of inoculation. The author believes that tetanic manifestations caused by extracts of these organs were attributable to the presence of the bacillus. The hemolytic power of organic extracts was also studied, 0.25-per-cent. solution of sodium carbonate being used instead of the 2-per-cent. solution, and sodium chloride, 0.85 per cent., being added. Hemolysis was absent in every instance.

OBSTETRICS AND GYNECOLOGY.

Urobilinuria in Pregnancy.—The changes which pregnancy brings about in the economy are gradually becoming better understood. G. Merletti (La Sem. Méd., Apr. 23, 1902) has noted his observations of pernicious anemia, progressive in type, among pregnant women, accompanied by a urobilinuria, intense in one patient whose child had died *in utero*. This led him to examine a number of other women during the last three months of pregnancy; he found that the spectroscope usually reveals a urobilinuria from three to four times the normal amount and that without the presence of any morbid symptom. Another observer, D. Ferrari, found a similar condition in ten pregnant women. Together with this physiological condition in pregnancy there is another very much more marked which seems to be connected with the death of the fetus. In addition to the case just mentioned in which it accompanied pernicious anemia, Merletti found a pathological urobilinuria in four women, as follows: In two during the fifth month; in one during the sixth, and in one during the seventh month. In all these women, as soon as the baby was dead, the urine contained such large quantities of urobilin that it could be detected not only with a spectroscope but by fluorescence, which consists in adding to the urine ammoniacal chloride of zinc. After delivery this urobilinuria disappeared very rapidly. Basing his opinion upon these few facts, this author considers that any very great increase in the amount of urobilin in the urine during pregnancy is apt to be accompanied by death of the fetus. Further observations he admits, however, are necessary in order to establish this theory beyond all chance of error.

Eclampsia during Twin Pregnancy.—The following interesting, instructive and peculiar case of eclampsia is reported by W. B. Mason (Lancet, May 10, 1902). The patient was twenty-six years old, menstruated at nineteen years of age, regularly, with pain, had never had any fits, had had scarlet fever as a child, but no hematuria; she was anemic and in June, 1899, had vomited blood. There had been no amenorrhea since marriage. On two occasions, October 30th and December 2, 1901, she had pain in the abdomen. Each attack appeared with tenderness and was relieved by hot fomentations. There was no discharge from the vulva and the temperature was not elevated. Labor commenced on February 19, 1902, was rather long, but quite normal up to the protrusion of the head of the first child. When the perineum was stretched to its utmost the patient's legs were noticed to stiffen and a regular eclamptic fit followed. First, there was a tonic stage, during which her head turned to the right; the eyes were wide open, and staring; her whole body then stiffened, producing opisthotonos or pleurosthotonos, according to her position in bed at the time. This stage lasted about three seconds and was followed by a clonic spasm of all the muscles of the body and snoring respiration. After this first fit she regained consciousness in about half an hour and asked whether it would soon be over. She did not know that there was a second child. During the birth of the second child exactly the same thing happened. Both children were small and were delivered without difficulty. As soon as the third stage was completed he began appropriate treatment for the eclampsia. One of the children died from inanition on the fourteenth day and the other one is apparently going to die also. The mother was allowed to get up on the twentieth day and is now in fair condition.

Fetal Malformations.—The many accidental arrests and perversions of development to which all animal and plant life is subject are matters of great interest, especially in the human being, because they contribute to the knowledge of fetal formation. The following specimen is described by M. Popescul (Ctlblt. f. Chir., 1902, No. 18) as illustrating one of the rarities encountered in midwifery, the possibility of which in obscure cases must not be overlooked. The child was one of twins developed from one ovum and its fellow was physically normal. This monstrosity was born second, after a delay of almost twenty-four hours. The head was arrested high up in the transverse position. It presented a soft, smooth, circumscribed tumor growing from the back of the neck in the middle line and covered with a very thin, rosy-red skin, which closely resembled mucous membrane, and was totally covered with hair. A highly-refined and distinct degree of fluctuation was present. At first sight the mass had the appearance of a simple cystic growth, but on closer examination it was easy to discover the outlines of the occipital foramen and of the opening between the ununited processes of the vertebræ. The tumor was therefore a spina bifida situated in the neck and traceable forward through the widespread longitudinal suture to the root of the nose. The fontanelles and all the other sutures were very wide open. As one of the curiosities of fetal dystocia this deserves note.

A Tamponade-holder Combined with Sims' Retractor.—The multiplication of instruments designed for special uses has not yet ceased and many appear and disappear from time to time solely because skill and ingenuity make them unnecessary. When they combine more than one purpose, however, the chances of their survival are somewhat increased. J. Rudolph (Ctlblt. f. Gyn., 1902, No. 18) presents the following device for holding gauze for tamponade of the vagina, while the instrument can be used as a Sims speculum. It consists practically of two Sims' vaginal retractors, the upper smaller and shorter than the lower and setting smoothly into the lower, the edges of which, except at the very tip, are raised to make a groove suitable for this purpose. The handle end of each is shaped into a half-cylinder of capacity sufficient to hold a large spool upon which the gauze packing is wound evenly and closely. The spool runs on a shaft which is suitably accommodated between the two halves of the instrument. When put together the instrument feeds the gauze out of its end in the space between the blades. It has a number of features in its favor, namely, ease of sterilization of both the instrument and the gauze, guarantee of permanency of the asepsis of the gauze, rapidity of its supply, possibility of operating with no disturbance, independence of unnecessary assistants, and availability for any kind of tamponade material. Its supply of gauze is necessarily limited, but this can be corrected by using a number of spools.

The Tuberose Fleshy Mole.—This is the most striking form of abortion, and is second in interest and in importance to the hydatid form alone, writes D. Berry Hart (Jour. of Obstet. & Gyn. Brit. Empire, May, 1902). Its external appearance is not only characteristic, but specimens are remarkably similar to one another in many respects. Thus, the period of gestation at which the condition occurs (second to third month), the size of the mass expelled, the characteristic elevations below the chorion, etc., are almost invariably the same in all the specimens, and suggest to one's mind that there must be some definite mechanical cause bringing about such similarity. Symptoms of threatened abortion develop during the second or third month. The patient thinks she has escaped miscarrying, but there is no increase in the size of the uterus; she remains amenorrheic and expels a mole, five, six, eight, or as late as fifteen months later. The writer thinks that the following is the method of production of the mole: (1) There is an undue blocking of the seratinal sinuses in the large-celled layer, leading to (2) a slow engorgement of the intervillous circulation. This will bulge out the chorio-basal septa, and as these tack down the chorion at definite points, the amnion and chorion will bulge up between. This produces the tuberose swellings. (3) The embryo dies as the result of this interference with the circulation, and its death is "secondary." (4) The placenta becomes a thrombosed mass and is retained a certain time before expulsion. The primary link in the chain of events is the excessive clotting in the seratinal sinuses from a cause as yet unknown.

Vaporization of the Uterus.—While the merit of having introduced this therapeutic measure into gynecology is due to Sneguireff, credit should be given to Ludwig Pincus of Danzig for the energy with which he has advocated the method, says G. F. Blacker (Jour. Obstet. and Gyn. Brit. Empire, May, 1902). The indications laid down by various writers for the employment of this procedure are to be found in the various chronic diseases of the endometrium and uterine hemorrhages of all varieties. It may also be employed as a palliative measure in certain advanced cases of carcinoma uteri. The author thinks that this mode of treatment is undoubtedly of value in certain cases; that while it may supplement the use of the curette, it can never replace this latter instrument; and that attempts to show that it is the best method of treating a large number of very different conditions cannot but fail to lead to the discredit of an operation which, within certain well-defined limits, should prove a measure of permanent value.

Ophthalmia Neonatorum.—In an extensive investigation of various lying-in institutions of Europe, E. T. Collins (Practitioner, Apr., 1902) found that the best results were obtained when a 2-per-cent. solution of silver nitrate was used immediately after birth, following the suggestion of Credé. Only .65 per cent. were affected with the disease when this solution was used. Almost equally as good results were obtained from a 1-per-cent. solution of sublimate, but weaker solutions were attended by higher percentages of ophthalmia. Furthermore, irritant effects from this drug are so rare that they are hardly worth considering and substitutes for silver nitrate seem to be unnecessary. Recently protargol in 20-per-cent. solutions has been employed with good results, and it is claimed that it is unirritating. In the treatment of this affection it is said that the stage in which a case of infantile ophthalmia is seen should be its worst stage. From the time when applications of a 2-per-cent. solution of silver nitrate once every twenty-four hours to the inner surface of the everted lids are begun, the condition should commence to improve. Cold compresses are also useful.

The Obstetric Pulse and Temperature.—In a careful observation of the temperature and pulse during gestation and during pregnancy, Constantin Daniel (Annales de Gyn. et d'Obstét., May, 1902) finds many points which are of value in diagnosis and prognosis. During gestation one may be forewarned of the approach of an infection and one can usually localize it. In labor they enable one to recognize any danger to the mother or to the fetus. The pulse and temperature are often influenced by purely physiological causes, such as the appearance of milk in the breasts, or disturbances of the same of genital origin. These are usually ephemeral, and in the absence of other symptoms are of no importance. In confinement it should be possible to show the progress of an infection and to localize it from the character of the pulse and temperature. Thus the curves of infections of the breast (abscess, lymphangitis), of genital infections (perineal tears, uterine involvement), and of general infections (phlebitis, septicemia) are quasi-characteristic. Often in one woman one will find several factors influencing the pulse and temperature and then one has to rely upon a more careful examination to make the diagnosis.

Nature of Puerperal Rheumatism.—In most textbooks of obstetrics the statement may be found that the puerperium disposes to rheumatism. G. Singer (Wien. klin. Rundsch., Apr. 20, 1902) is of the opinion, however, that a specific puerperal rheumatism does not exist and that all cases must be considered either gonorrheal or septic in character. The frequency of latent gonorrhea and the ease with which the gonococcus can reach the circulation after childbirth, owing to tears of the cervix, rupture of pus-tubes, and similar accidents, makes the former origin probable, especially since the rheumatism is frequently monarticular and shows a tendency to ankylosis. In case of endocarditis of doubtful origin, the patient should always be questioned as to the presence of joint pains after delivery.

Vicarious Menstruation from the Retina.—An instance of this rare condition is reported by J. G. Huizinga (Jour. Am. Med. Assoc., May 31, 1902) in a girl of seventeen, with an excellent family and personal history. Her menses appeared at fourteen and were fairly regular, with only slight attendant symptoms. During one of her periods, while stooping, she became suddenly dizzy, and vision was dimmed. Examination of the eyes showed a hemorrhagic retinitis, with numerous blood-spots, and a few clots in the vitreous. Under treatment the condition subsided, but recurred with the next and the succeeding period and then did not appear again.

THERAPEUTIC HINTS.

Areas of Insensibility after Spinal Anesthesia.—That there is a certain law concerning the succession of parts rendered insensible by cocaine injected into the spinal canal has been discovered by F. Neugebauer (Münch. med. Woch., May 6, 1902). He finds that the nerves are affected in their proper anatomical order from below upward, so that the region of the fourth sacral nerve, the perineum and the external genitals first become anesthetic; then the sacral and coccygeal areas, with the adjacent internal and posterior aspects of the thighs supplied by the third sacral; then the posterior surface of the thigh and leg, with the foot, innervated by the second sacral. A portion of the sole is, however, supplied by the first and this has been found to lose its sensitiveness later. Following the foregoing the lower two-thirds of the anterior and lateral thigh surfaces and the greater part of the anterior surface of the leg, supplied by the fourth lumbar and the first sacral; then the upper part of the thigh, the inguinal and hypogastric areas, innervated by the first, second and third lumbar, are affected. In the upper extremity, the results are probably the same.

Foreign Bodies in the Nose.—To remove foreign bodies from the nose, F. J. Steward (Clinical Journal, Nov. 6, 1901) stands behind the patient, passes a probe along the floor of the nose to get under the foreign body, and pries it upward and forward. It can go in only one direction and that is out of the anterior nares.

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THE "BULL PIT."

WHEN the gladiator of ancient Rome entered the amphitheater to battle for his life and to afford to the public an interesting spectacle, he was wont to address his Cæsar in the well-known words, "morituri te salutamus." The modern mind looks upon this ancient custom as brutal and revolting, and even our Cæsars would cover their faces to shut out the sight of men battling against each other or wild animals.

The Department of Public Charities has had a long line of Cæsars of varying worth and ability. The present Cæsar, elected for purposes of reform, is striving to put down the ancient abuses and wrongs in his domains. The details of such a department are very numerous and tedious and many must of necessity escape the notice of such a high official; but we feel there is one neglect which would not be tolerated should it be brought to his notice.

The medical staff of the City Hospital is composed of twenty-four interne physicians who are supposed to be properly fed and housed and probably would be if the true condition of affairs were known. The main quarters, where the members of the staff sleep, are on the top floor of the central building of the hospital and consist of but five rooms. In four of these eight house physicians are quartered. In the remaining room, which is approximately twelve by fourteen feet, three seniors and one junior reside. The beds are of iron and at one time served as cots for ward patients. They are provided with straw mattresses and straw pillows. There is a single closet in the room which does duty for all four men. A broken-down washstand, a rickety table and a mirror, six by eight inches, complete the rest of the room's furnishing. The room is illy lighted and no one can sit in it as there is neither light nor available space for such a purpose.

These provisions, however, are truly luxurious compared with the quarters assigned to the junior members of the staff. On the ground floor of the hospital, off from the central building, between a dirty kitchen and a vermin-infested bathroom used for the newly admitted patients, is an apartment twenty-one by fourteen feet. The ceiling is about eleven feet high. Arranged in beautiful symmetry are two rows of cots, six on either side of the room. In one corner is a kitchen sink with a cold-water faucet where the matutinal ablutions are performed. There are no closets in which the men may hang their clothes or even as much as a row of pegs on the wall. Not to be daunted the juniors fold their trousers and place them beneath the two blankets which serve as mattresses on the cots. (The straw mattresses of the upper rooms are deemed too great luxuries for the junior physician who holds a position in the hospital's social scale somewhere below the ex-inebriated elevator-man.) The rest of the clothes are kept in steamer trunks under the cots. This is the "bull pit" and in it are quartered twelve men.

The City Hospital is not unique in its quarters for the junior house staff. Bellevue also has its "bull pit" for the junior physicians of its staff.

Is it to be wondered at, then, that we hear of members of these staffs falling victims to tuberculosis and other diseases, living as they do in such pest-holes? Can one expect them to do good work? These young men, in most instances, are accustomed to the majority of this world's good things. They are educated and come from refined surroundings and are full of enthusiasm and willingness for work, but after a short life under such conditions the enthusiasm wanes and they become dissatisfied and discontented and let their work slide. This is the young doctor who is so unmercifully criticized. Everyone knows that the food supplied them is poor enough, but they would willingly put up with this inconvenience could they be but comfortably housed.

IS THE PROPHECY TRUE?

There was something greater than a straw which pointed out one very evident trend of surgical evolution for the past year. Dr. W. G. Macdonald of Albany, rising to discuss the gynecological papers which had been read by members of the American Surgical Association at its recent meeting in that city, said, "Gentlemen, it is prophetic; the general surgeon is at last coming to his own; these papers show how very successfully he can invade the so-called specialty of gynecology. It is evident that the day is near at hand when the 'gynecologist' will rest—not with his fathers, but with some of his former patients!"

What was said partly in jest may be prophetic. It is at least significant that at this meeting of the most exclusive and representative organization of general surgeons, Andrew J. McCosh should read a paper on "Myomectomy vs. Hysterectomy;" John B. Deaver, on "Abdominal Hysterectomy;" Maurice H. Richardson, the Chairman of the organization for 1903, "On the Choice Between the Vaginal and Abdominal Routes in Reaching Pelvic Tumors," W. G Macdonald on "The Technic of Supravaginal Hysterectomy." These men have each done hundreds of gynecological operations and the spirited discussions of their papers showed that most of the members were eagerly embracing every opportunity to operate within the female pelvis. It is well known that because of too great competition one prominent gynecologist of New York City has recently renounced the unadulterated practice of his art, and after nearly twenty years has again taken up general medicine. The gynecologists have sewn good seed and are reaping a harvest; they perfected operations and technics on a very limited, but all-important system; that their usefulness is disappearing and that they, as a class, are declining seems possible.

FALSE PRETENSES AND FEMININE CHARMS.

A recent decision on appeal in an Iowa court seems to have a much wider significance than could well have been anticipated by the community at large. The defendant in a suit for breach of promise alleged, as a justification for his refusal to marry the plaintiff, the fact that he had been led primarily to enter into the engagement with her because of the magnificent head of brown hair she possessed. On learning (needless to say from another woman) that these attractive and ensnaring locks were not her own, except in so far as she had acquired the right to them by purchase, the defendant at once set out to discover the truth of this statement, and, having ascertained beyond all doubt that the capillary adornment was only an accessory to and not an essential of the beauty of his fiancée, requested to be released from his promise of marriage. The lady brought suit for breach of promise and the lower court upheld her contention that the gentleman had no proper justification for his action. The Appellate Court, however, has just decided that the plaintiff secured the affections and offer of marriage from the defendant by "false pretenses" and that the engagement cannot therefore be held to bind him legally to its fulfilment.

It would strike the physician that this legal tenet of "false pretenses" might well become the excuse for many broken engagements. Suppose the young man claims that he was attracted to the young lady in the case by her pretty teeth and then learns that they are false. Will this also be justification sufficient in the eyes of the law for breaking his plighted troth? After all false teeth are not uncommon. Someone said the other day as a joke—that is, however, no joke in reality—that false teeth were the teeth men got last and women too. We foresee heaps of broken engagements without the pale of the law that will be scattered along the shore of the proximate future if this Iowa decision is to have as wide application as might be pessimistically anticipated. Will a false smile (heaven save the mark) be a legal justification for broken premarital vows? How much or how little of false pretense will be necessary to ensure legal impunity? Must women forego those charming simulations that have ever tempted men to matrimony, though the subsequent course of married life has not always shown a true feminine desire to keep them up for the sake of harmony? And shall the false pretenses of the men, from padded shoulders to poetry and the retailing of their athletic prowess in days of yore, also be a matter for the justification of failure of the lady to fulfil her pledge?

It is with the anatomical questions involved, however, and with the possible decrease of the present low marriage-rate and consequently the birth-rate that we as physicians are concerned.

Will the flagrant use of false pretenses in anatomy serve perhaps even to vitiate the marriage contract? After all the troth and marriage contracts are not so far removed from one another either in the eyes of the law or of religion. Anyone who knows what female anatomy really is and then studies a series of fashion plates from year to year even for a single decade will realize how much of "putting on" there is in the eternal womanly as we see her at any given moment. Someone said not long ago that very few young women had any visible reasons for wearing low-neck dresses. Shall the use of various supplements that are meant to enable their wearers to conform to existing fashions also be considered false pretenses? There is a German expression, we believe, according to which if the wife leaves more than one-third of herself on the chair the husband has a right to at least half a divorce. Then shall the suppression of superabundant charms also be considered false pretenses? Really, the social fabric as at present constituted seems threatened by this far-reaching Western decision.

Long ago Sir Thomas More, the famous chancellor of England under Henry VIII, told how in Utopia a grave matron presents the bride naked, whether she is a virgin or a widow, to the bridegroom and after that some grave man presents the bridegroom naked to the bride. The men of Utopia wondered at the folly of the men of all other nations who, if they are but to buy a horse, are cautious to see every part of him and take off his saddle and all his other tackle and yet who in the choice of a wife, on which depends the happiness or unhappiness of a life-time, should venture upon trust and see only about a hand's breath of the face. "It is certain there may be some deformity covered by the clothes as may totally alienate a man from his wife when it is too late to part from her." Is it toward some such precaution as this that the Iowa legal decision points?

There have been several attempts at the institution of medical examinations before marriage on the part of Western legislators. These have failed. Is it possible that this tenet of "false pretenses" is to be the entering wedge by which the judicial authority is to accomplish what the legislature has failed to do? The thought is so serious that it causes us to pause.

Insanity in Berlin.—The increase of cases of insanity in Berlin has necessitated the projection of two additional asylums.

ECHOES AND NEWS.

NEW YORK.

A New Journal—"American Gynecology."—An unusually attractive prospectus is presented for the opening bow of a new claimant for editorial recognition. "American Gynecology" is to be edited by an editorial board of well-known physicians and gives promise of filling a place in the fabric of medical journalism.

Dr. Stubbert Resigns at Loomis Sanatorium.—Dr. J. Edward Stubbert, who has been physician-in-charge of the Loomis Sanitarium since its opening in 1896, has tendered his resignation, but will continue as a member of the Medical Board, which consists of ten other New York physicians. He will devote all his time to his practice in New York City.

To Treat the Acutely Insane in New York.—The State Commission in Lunacy decided June 24th to have constructed in New York City, one in the Borough of Manhattan and the other in the Borough of Brooklyn, hospitals for persons threatened with insanity. Here patients will be treated immediately, and, if possible, insane symptoms will be eradicated. These patients will not be put among inmates of the State Hospitals for the Insane until their insanity is clearly established. Dr. Frederick Peterson, President of the State Commission in Lunacy, sailed for Europe June 26th, and while there will inspect the various detention hospitals for the insane similar in type to those that it is proposed to establish in New York. It is said that the commission at its recent meeting appointed Dr. Morris C. Ashley, acting superintendent of the Middletown State Hospital, to fill the vacancy caused by the death of Dr. Talcott.

Prophylaxis of Venereal Disease.—The following resolution, introduced by Dr. Ludwig Weiss of New York City and seconded by Dr. D. L. Bulkley of the same place, was unanimously adopted by the Section on Cutaneous Medicine and Surgery of the American Medical Association at its meeting June 12, 1902, and a committee consisting of Drs. L. Weiss and D. L. Bulkley of New York and Frank H. Montgomery of Chicago was appointed to present the same to the Section on Hygiene and Sanitary Science of the American Medical Association, for coöperation. *Whereas:* There is a burning necessity to check the spread of venereal diseases, and, assuming that the States cannot with impunity ignore the condition, it lies in the province of the medical profession to discuss and recommend to the respective State Legislatures and municipalities means —not regulamentative, but social, economic, educative and sanitary in their character, to diminish the danger from venereal diseases. *Resolved:* That the Section on Cutaneous Medicine and Surgery of the American Medical Association invite the Section on Hygiene and Sanitary Science to coöperate with the Section on Cutaneous Medicine and Surgery in bringing about a propaganda in the different States, looking toward a proper recognition of the dangers from venereal diseases, and to arrange for a national meeting under the auspices of the American Medical Association for the prophylaxis of venereal diseases, similar to the International Conference for the Prophylaxis of Venereal Diseases, which meets again this year at Brussels under the authority of the Belgian Government at Brussels. The House of Delegates of the American Medical Association at its meeting June 13, 1902, acted favorably upon this resolution, and appointed a committee of six to study the matter and to report to the Association at its next year's meeting. These are the members of the

Committee appointed by the Chair: Drs. Henry D. Holton, Brattleboro, Vt.; Geo. M. Kober, Washington, D.C.; W. H. Sanders, Alabama, from the Section on Hygiene and Sanitary Science, and Drs. Ludwig Weiss, New York; Duncan L. Bulkley, New York, and Frank H. Montgomery, Chicago, from the Section on Cutaneous Medicine and Surgery.

Manhattan Dermatological Society.—A regular meeting was held June 6, 1902, Dr. W. S. Gottheil, presiding.

Dr. L. Weiss showed an infant, fourteen months old, with cretinism; there was the typical idiotic expression, large flabby tongue, rounded belly and arched legs; rectal temperature never above 96.6° F.; cerebral functions in abeyance; no apparent changes in the thyroid gland; the case was regarded as typical; Dr. Weiss believes in the efficacy of thyroid medication, but would observe caution in so young a subject. Dr. Kinch reported good results from the use of 1½ gr. thyroid daily in an infant eleven months old. Dr. Cocks was treating four cases and in one no result. Dr. Geyser had a case under observation for eight months; general condition good, but the tongue remains large, interfering with nutrition.

Dr. Sobel said a Mongolian idiot presented the appearance of a cretin; in the former there was no subnormal temperature; rickets was often mistaken for cretinism, but epiphyseal changes are a diagnostic sign. Thyroid extract should be given early and continued for a long time; a rise of temperature to 100 or 101° F. was the signal for intermission in treatment. Dr. Abrahams said iron in combination gives better results; it combats the anemia. Dr. Oberndorfer spoke of the analogous condition as seen in the adult, *viz.*, myxedema.

Dr. J. Sobel presented his case of sclerema neonatorum, to show the marked improved condition after daily rubbings with equal parts of ungt. hydrargyri and ungt. ac. boraci, ½ gram each; he believes the child will ultimately recover.

Dr. Kinch shows a boy of four years, with a dark pigmented spot on forehead, origin unknown; it was perfectly flat and well defined. It was believed to be of internal origin, though Dr. Pisco thinks it may be a melanoma.

Dr. Gottheil shows a child with an extensive capillary nevus covering the left half of face; the trunk, chest and back also show marked capillary dilatation, best seen when the child cries, the parts involved becoming intensely hyperemic; in addition there was an atrophy of the right gluteal muscles. The question of maternal impressions was raised by Dr. Wainwright. The atrophy was not accounted for.

Dr. R. Abrahams presented a marked case of lupus erythematosus, occupying the nose and adjacent cheeks. It was treated for four months with the X-ray without benefit, likewise with injections of 95-per-cent. alcohol; better results not apparent from the use of a 20-per-cent. plaster of mercury-salicyl. Dr. L. Weiss spoke of the use of Koch's lymph and Hebra's freezing mixture. Dr. Pisco mentioned glacial acetic acid. Dr. Bleiman spoke favorably of creosote-salicyl plaster. Dr. Geyser has faith in the X-ray and Dr. Gottheil prefers the Fünsen light.

Dr. I. P. Oberndorfer presented a typical case of acne varioloformis confined to scalp and forehead.

Dr. R. Abrahams also presented a case which he regards as lupus vulgaris; an ulcerated, deeply excavated patch seen on left wing of nose surrounded by a row of hard papules and an areola of redness with scaling; the patient is a woman, fifty years of age; began six weeks ago. Dr. Oberndorfer inclines to syphilis, owing to short period; in some respects looks like epithelioma. The latter opinion was likewise shared by Drs. Kinch and Gottheil. Dr. Pisco calls it a tertiary lesion. Drs. Sobel and Bleiman consider it a gumma. Dr. Weiss regards it as specific, owing to the appearance of the throat, which shows adhesions of uvula to pharyngeal wall.

Dr. J. Sobel presented a man with well-marked mucous patches on the lower lip; his fiancée (also present) shows a hard indurated papule on the lower lip, which was regarded by all present as a primary sore.

Dr. Geyser showed two cases of epithelioma; one recurrent involving the lower lip and the other involving the nape of the neck; the latter is of twenty years' duration; he is treating both cases with the X-ray and reports favorable results. Dr. Geyser also showed radiographs of a bilateral bone tuberculosis in a patient with lupus of the face.

Dr. E. L. Cocks presented a woman of fifty years, showing circular scaly patches on the forehead, chin and over both eyebrows. Twenty years ago a general eruption appeared on the body which was then diagnosed as "infection"; the present eruption is of three months' standing. Dr. Cocks does not believe it to have any connection with the early eruption. Dr. Oberndorfer regards the present eruption as a tuberculous syphilide. Dr. Pisco said he had seen a case of granuloma fungoides which, in appearance, resembled the present case. Dr. Kinch and Geyser think it specific.

Dr. R. Abrahams showed a boy with a herpetic eruption over both sides of the face, nose, both ears and along the nape of neck; this eruption was preceded by temperature. He regards the case as a double herpes zoster. Dr. Pisko said this condition was exceedingly rare and called the case one of eczema vesic. bullosum. Dr. Weiss agrees with Dr. Abrahams and showed plates to illustrate his contention. Drs. Sobel, Gottheil, and Oberndorfer call it herpes febralis. Dr. Geyser suggested dermatitis venenata.

PHILADELPHIA.

Verdict Against Boracic-acid Preserved Food.—The Dairy and Food Commission of Pennsylvania has for some time been endeavoring to obtain a Court decision on the use of boracic acid as a food preservative. Until lately, dealers paid the fine without appealing to Court. Recently an Altoona grocer, convicted of selling oysters preserved by the method in question, appealed, which gave opportunity for expert testimony as to the injurious effects of the boracic acid and the jury convicted the grocer. The case is considered an important one as, if the decision holds, it will keep out of the State the boracic-acid preserved meats of the meat trust.

Resignation of Dr. Andrews as Police Surgeon.—Dr. T. H. Andrews, chief surgeon of the Bureaus of Police and Fire, has tendered his resignation, to take effect July 1st. Dr. Andrews has been police surgeon for about fourteen years, he being the second incumbent of that office. He has always been strict in his examination of applicants for the police and fire departments and has thus raised the physical standard in both. In this connection it is related that one promising applicant who was just a shade under the required height was told by Dr. Andrews to remain in bed continuously for three days and then report again. He did so and reached the required measurement. Two of the improvements effected by Dr. Andrews have been of great value to the city. One is the non-detention in police stations of persons presumed to be insane or prisoners or patients supposed to be intoxicated, but whose real condition is doubtful. They are now at once forwarded to the "detention ward" in the Philadelphia Hospital. The other improvement referred to is the formation of the Medical Emergency Corps, composed of the district police surgeons. The services of this organization are conspicuous during the presence of large crowds in the city.

Sweeping Vaccination Order in Pittsburg.—The Board of Health of Pittsburg has ordered every citizen who cannot show evidence of recent successful vaccination to be vaccinated before July 16th. After that date a house-to-house canvass will be made and delinquents will be vaccinated, forcibly if necessary. It is said that the physicians of the city have refused to assist in that work and students from the Western Pennsylvania Medical College will aid the Bureau in its canvass.

To Save Paupers from Dissection.—The citizens of Williamsport are reported as having developed antagonism against the State law requiring that the bodies of paupers shall be turned over to the State Anatomical Board for dissection. The Poor Committee of City Councils has taken steps to test the validity of the law. A resolution instructing the Poor Board to bury the pauper dead will be passed by Councils and if the Anatomical Board objects, the city will bear the expense of a test suit.

Danger in Manicuring.—The recent death of a prominent society man of Baltimore from infection said to have resulted from manicuring operations performed in Philadelphia has caused wide discussion among the manicurists in this city. They believe that if the public knew the danger, better conditions would be enforced and the business benefited, hence there was no hesitancy in discussing the case. Some claim that every stage in manicuring and chiropody is performed under antiseptic precautions. It is also claimed that the vanity of patients in demanding a "half moon" on the nail, results in forcing back or cutting the cuticle, which opens the way for infection. First-class manicurists usually refuse to do this, preferring, if necessary, to lose a patron.

Pennsylvania Hospital.—The 151st annual report of the Pennsylvania Hospital embodies the first year, just closed, since the completion of the enlargement and reorganization begun nearly ten years ago. During the year there were treated 4,705 patients, 360 more than in any previous year and 2,535 more than in 1891-92, a gain of 116 per cent. in 10 years. Of the 4,705 only 141 were pay patients, an enviable record for a hospital which receives no public appropriations. The cost of maintenance during the year was $126,000.

Society of Nurses Chartered.—The Society of Nurses of the Hospital of the Protestant Episcopal Church in Philadelphia has been granted a charter. The corporation was formed "for the maintenance of a high standard in professional work among pupil and graduate nurses of the Episcopal Hospital, mutual friendship and social intercourse, and the care of members when ill, from dues, bequests and voluntary contributions."

Dr. Augney Appointed Police Surgeon.—Dr. William M. Augney has been appointed chief surgeon of the Bureau of Police to succeed Dr. Thomas H. Andrews. Dr. Augney has been for the past eight years a medical inspector in the Bureau of Health.

Camden Free from Smallpox.—The city of Camden is now free from smallpox for the first time since the late epidemic began. The last case was discharged from the Municipal Hospital on June 27th.

Donation to Altoona Hospital.—It is reported that Charles M. Schwab, President of the United States Steel Corporation, has made a donation of $35,000 to the Altoona Hospital.

Negro Dies at Age of 116 Years.—William Batton, colored, died June 25th at the age of 116 years. Seven of his twenty-two children survive him.

Wills Eye Hospital.—A statement of the financial condition of this Hospital has been made by Edward S. Buckley, Chairman of the Committee. State aid has been insufficient or entirely lacking. An infectious ward begun, has been left unfinished from lack of funds. An erroneous and unfortunate impression prevails among many people that, as the Wills Hospital is managed by the Board of City Trusts who administer the affairs of the Girard estate, any shortage in the hospital income may be supplemented from the large resources of that estate. On the contrary not one dollar of the Girard income is available for the support of the Hospital. A citizen of Philadelphia has offered to give $15,000 to a fund for the endowment of the Hospital if the sum of $100,000 be subscribed by January 1, 1903.

Suit Against Asylum.—An outcome of the change of resident physicians at the Norristown Insane Asylum during the past year is a suit against the Asylum for $11,454.66. This has been instituted by Dr. Susan J. Taber on the ground of breach of contract, a five-year term being ended without reasonable cause.

Officers of New Jersey Medical Society.—The Medical Society of New Jersey at its annual June meeting elected the following officers: President, Dr. E. L. B. Godfrey of Camden; Vice-Presidents, Drs. Henry Mitchell, A. W. Taylor, W. H. Johnson; Corresponding Secretary, Dr. E. W. Hedges, Plainfield; Recording Secretary, Dr. W. J. Chandler, South Orange; Treasurer, Dr. Archibald Mercer, Newark.

Effect of High Speed on Engineers' Nerves.—The constantly-increasing speed of trains makes pertinent the discussion by railroad men of the statement of the Glasgow physician that most railroad accidents of the ordinary sort are due to failure of the railway men's nerves, with the implication that the faster the train the earlier will be the nervous breakdown. A Reading official, who was himself an engineer on fast trains for years, states that he does not know of a single accident due to nervous exhaustion. Men who run the fast trains between Philadelphia and New York, the Atlantic City flyers, etc., would laugh if told that they were losing their nerve. Another official said: "If an engineer gets his proper rest, I do not see that anything is to interfere with increasing the speed of our trains to 100 miles an hour or more if we can get engines to do it. Our New York crews make one round trip a day, meaning a little over four hours' actual riding in twenty-four. Besides this, every engineer has one week-day off every week, and one Sunday off in three." Pennsylvania officials are equally emphatic regarding the effect of high speeds, and proper rest is all that is considered necessary to avoid nervous breakdown. All unite in saying that the most potent cause of nervousness, even in the best engineers, is the running of special trains carrying a dignitary or man of high public rank. When there is the greatest anxiety to avoid an accident the greatest danger is imminent because of the strain on all the people in charge.

Public School in Asylum.—A public school is to be started in the Philadelphia Orphanage on Lansdowne Avenue. Two teachers will be employed and besides the inmates, children in the immediate vicinity will be instructed.

Petty's Island again Prominent.—A bill authorizing the purchase of 150 acres of Petty's Island as a site for the Almshouse is now before Councils. The price is to be $480,000.

Diagnosis and Treatment of Flatfoot.—Dr. James K. Young spoke on this topic at the meeting of the Philadelphia County Medical Society, June 25th. The diagnosis is generally easily made by inspection, but tracings are needed for more exact work. For this purpose Dr. Young formerly used vaselin, but now prefers the use of tannic acid and iron. The inclined mirror is also of great value in determining the exact condition present and in differential diagnosis between pronation, flattening of the anterior arch and rheumatism. The various methods of treatment for different degrees of deformity were briefly mentioned and models and splints exhibited.

Free Maternity Service Investigated.—Since last October about 20,000 boxes asking contributions to the Free Maternity Hospital service have been scattered throughout this city and State. An application for a charter has caused an investigation and an end of the Society. The founders admit an income of $4,800 up to April 28, 1902, and an outlay of $720 for maternity cases treated by them. Three incorporators gave wrong addresses.

Pes Equino Varus.—Dr. G. G. Davis, in speaking of this condition, emphasized particularly the fact that cases were nearly always seen first by the general practitioner and the final result is largely due to his judgment. The majority of the cases can be treated successfully by the general practitioner if he is willing to devote the time they require and in certain cases call in a specialist occasionally to see if proper progress is being made. A careful study of the degree of deformity should be made and the line of treatment determined. If in good health the child cannot be too young for treatment. There are three stages in the treatment of moderately severe cases: (1) Manual correction. This should be done twice a day and can be looked after by the properly instructed mother or nurse. (2) Splints. These should be applied to correct the deformity, the bandage being tightened from within outward to aid in correction. Plaster of Paris may be of great advantage in some cases. Splints may be used for several months and should be far enough advanced that the child may wear supports by the time it begins to walk. (3) Shoes and brace made by an instrument maker. Division of tendons or fascia may be used as an adjunct. In cases requiring severe operation, Davis much prefers the taking out of a wedge-shaped piece of bone extending across the tarsus to astragalectomy and like operations. Eternal vigilance is the price of good results in these cases and the general practitioner should pay more attention to their treatment.

Talipes Equino Varus.—Dr. J. P. Mann exhibited a patient in whom this deformity had been corrected without disturbing the bones. Two subcutaneous operations and four or five stretchings under ether were the means employed. The Phelps operation and the various bone methods are condemned as dangerous and unnecessary. Forcible correction is efficacious, if combined with tenotomy or incision of the soft parts in severe cases and has not the disadvantages of the other methods. It should be followed by the plaster bandage which is changed every week. Later a retaining shoe and brace are substituted. These must be worn a varying length of time as determined by each case.

Obituary.—Dr. Robert A. Work, aged thirty-four years, a widely-known eye, nose, and throat specialist of Bethlehem, Pa., died there June 17th, after an operation for appendicitis. Before locating in Bethlehem, four years ago, Dr. Work was surgeon to the Wills Eye Hospital in this city.

CHICAGO.

Appointment of Dr. Carriel.—Dr. Harry B. Carriel, of Jacksonville, has been appointed superintendent of the Central Illinois Hospital for the Insane, to succeed Dr. Joseph Robbins, whose resignation will take place July 1st. Dr. Carriel was the unanimous choice of the Board of Trustees. Dr. Carriel is a son of Dr. H. F. Carriel, who was superintendent of the Hospital from 1870 to 1882. He was graduated from the Chicago Medical College and later studied in Germany. He was appointed first assistant physician at the Central Hospital under Governor Tanner, which position he held until about six months ago, when he went to Bartonville, Ill., to become acting superintendent of the Hospital for the Incurable Insane after the death of Dr. F. C. Winslow.

Opinion as to Practice of Medicine: Sale of Device.—The Supreme Court of Illinois holds in the case of People, to Use of State Board of Health, *vs.* Lehr that a question was manifestly improper in which a physician was asked to state whether or not, in his opinion, a person prescribing a medical device, claiming that it would cure rheumatism, etc., would be regarded as practising medicine, as the witness understood the term. The Court says that the statute defines the practising of medicine, and that it was for the jury, and not for a witness, even though he might be called an "expert," to say whether certain conduct amounted to the practice of medicine. In other words, this question sought to have the witness decide the very ultimate question which the jury had been sworn to try, and, consequently, an objection to it was properly sustained. Then it was asked that the jury be instructed that if it found from the evidence that the party charged with illegally practising medicine prescribed a certain instrument or device to persons suffering from physical ailments, and recommended it as a means of cure or relief for such ailments, and that he did so without first obtaining a license therefor from the State Board of Health, then the jury should find him guilty and assess his fine as provided by statute. But this instruction, in view of the facts of the case, the Court holds, did not correctly state the law. It says that the party did not "treat, or profess to treat, operate on or prescribe for any physical ailment, or any physical injury to or deformity of another." He simply offered and recommended the instrument or device in question for sale. He was practising medicine, within the meaning of the statute, no more than is the druggist or pharmacist who sells and recommends surgical instruments, atomizers, and innumerable other appliances used by the afflicted. If this instruction should be held to announce the correct rule of law, then any neighbor or friend who might prescribe or recommend the use of a particular instrument or device would be guilty of violation of the statute, which is certainly not in accord with the spirit of the statute or the intention of the legislature. The evidence not showing that he was an itinerant vendor of the device, he could not properly be convicted of violating Section 8 of the statute, which provides "that any itinerant vendor of any drug, nostrum, ointment or appliance of any kind intended for the treatment of diseases or injury, who shall, by writing or printing, or any method, profess to cure or treat disease or deformity by any drug, nostrum or application, shall pay a license," etc., admitting that the device in question was an appliance, within the meaning of this statute. This, like all other penal statutes, must be strictly construed. The statute is a wise and humane one, and, within its reasonable construction, to be rigidly enforced; but any attempt to make it cover cases like this would be an abuse, rather than an enforcement of it.

Primary Tuberculosis of the Parotid Gland, with Report of a Case.—After a careful perusal of the literature, the author claims that primary tuberculosis of the parotid is either a rare disease or has remained unrecognized by clinicians. From a careful analysis of only eight cases reported up to date by French, German and Italian surgeons, he divided the disease, pathologically and clinically, into two forms, a circumscribed and a diffuse, the latter being far more frequent. The affection is a purely local one, and surgical interference results in a permanent cure. Total extirpation of the gland is not essential to such results. In all recorded cases, including the author's case, the diagnosis was made after the operation, microscopically. In none of the cases was the discharge from the gland subjected to an examination. Such examination should not be overlooked. He further claims to be the first American surgeon to add one more case of this seemingly rare disease to the literature.

Nodding Spasms with Nystagmus.—Dr. Isaac A. Abt presented a case before a recent meeting of the Chicago Medical Society of nodding spasm or gyrospasm, so-called by Peterson, also called rotatory spasm, which has excited a good deal of interest on account of the rarity of its appearance and also on account of the obscurity of the origin of the spasm. This child was eight months old, and was the fourth child. The parents were both well. The other children had always been previously healthy, and the health of this child had been good. About two months before the mother noticed that the little fellow was almost constantly shaking the head from side to side. She also noticed that the child had oscillatory movements of both eyes, nystagmus. This condition continued up to the time the case was presented. The child was breast-fed, and had been in good health. The spasm ceased when the child was asleep. Nystagmus, which at first was confined to both eyes, occurred at the time presented for the most part in the left eye, and was horizontal in character. The rotation stopped at times, when the child's attention was attracted, or when the eyes were closed. In addition to what the essayist had said, examination showed that the child was moderately rachitic. It had a well-defined rosary, and it had very slight enlargement of the epiphyses, which could be readily seen. Dr. Abt had seen a number of these cases, and at one time had made them the subject of a special report; since that time he had collected three additional cases, making five in all. This nodding spasm usually occurred in otherwise healthy, vivacious children, who were slightly rachitic; not in cases in which there was a high degree of rickets. The head rotation might be horizontal or nodding in character. In all of the cases, at one time or another, nystagmus was present, although at times it seemed to be absent late in the disease. The course of the disease, so far as he knew, and so far as published reports were concerned, was always favorable, in that it usually ended in spontaneous cure in from three to four weeks, as reported by Henoch, to twenty-one months, as reported by Randnitz. The nature of the disease was extremely obscure. This much is known: It is nearly always associated with rickets and seemed to depend upon some nutritional disorder. B. Sachs believes that it is due to an irritation or lesion of the basal ganglia, while others believe it is caused by nystagmus which result from poor hygienic surroundings and darkened living-rooms. The nystagmus, it was believed, secondarily resulted in the head rotation, due to the endeavor of the child to fix its head. Other hypotheses have been advanced.

CANADA.

Ontario Medical Council.—The Ontario Medical Council met in annual session in Toronto during the past week. All of the members were present with the exception of two who were absent through illness. Dr. W. H. J. Emory of Toronto was elected president and Dr. J. A. Robertson of Stratford vice-president. Dr. R. A. Pyne was re-elected registrar. A brief debate took place over the clause which was inserted in the Ontario Medical Act at the last session of the Ontario Legislature which provided that all registered practitioners shall be entitled to vote upon certain questions affecting the Council's constitution; and it was finally decided that this meant all those in good standing, meaning those who had paid their annual two-dollar assessments. As there are about 175 in the Province who did not do this they will not be entitled to vote upon the questions which will be submitted to the profession throughout the Province in the fall. During the progress of the meeting a cablegram was despatched to King Edward's secretary conveying a message of sympathy with the Royal patient. A reply was received to this stating that His Majesty was progressing favorably. By a vote of 16 to 11 it was decided to raise the standard of medical matriculation in the Province. The Council unanimously approved the Bill of Dr. Roddick, M.P., which had passed through the Dominion House of Parliament successfully, and will take steps to have the ratification of the measure as provided in the Act secured at the next meeting of the Provincial Legislature. The Property Committee recommended that the present building in Toronto be sold and that a site for a smaller building be purchased. Sir Frederick Borden, M.D., M.P., was registered as a licensed practitioner of Toronto, Dr. Borden having been previously a practitioner in the Province of Nova Scotia. A committee was appointed consisting of three well-known and prominent practitioners of Toronto, viz., Drs. W. B. Geikie, Macdonald and Britton, to further the proposal to establish in Toronto an anatomical museum.

An Important Malpractice Decision in Ontario.—Justice Falconbridge of Toronto has recently delivered judgment in a malpractice suit which has caused no little interest among the profession in the Province of Ontario. The case was tried recently at the Toronto non-jury sittings and was brought by a woman against two brothers of an Eastern Ontario town who were practising in partnership. The case arose through the dislocation of the astragalus, treatment of which had been interfered with by the patient. The Statute of Limitation in Ontario required that suit be instituted within one year; and the judgment upon this point is particularly interesting to Ontario physicians. The learned judge held that "consulting another surgeon (which the plaintiff had done) in the absence of, and without notice to or leave of the surgeon in charge, is an indication of want of confidence in the latter, and would of course be treated by him, when he came to know of it, as tantamount to a dismissal of him by the patient." The burden of evidence clearly showed that the patient had been properly treated by the defendants; and the case was dismissed against the defendants on all the counts. Canadian practitioners have now a protection against all of these so-called malpractice suits of which all should avail themselves annually, viz., the organization perfected at the last meeting of the Canadian Medical Association at Winnipeg, when the Canadian Medical Protective Association was organized.

A Canadian Physician Knighted.—Dr. Frederick W. Borden, M.P., Minister of Militia for Canada, has been created a Knight Commander of the Order of St. Michael and St. George.

Dr. Osler a D.C.L.—Dr. William Osler was honored at the June Convocation of Trinity University, Toronto, with the degree of Doctor of Civil Law. Replying to the honor Dr. Osler recalled the time when he was an undergraduate of the University.

GENERAL.

Home for Destitute Physicians.—A recently deceased physician of Moscow, Russia, has willed the sum of 800,000 rubles to that municipality for the founding of a home for destitute members of the medical profession.

Congress Medical Electrology.—The Second International Congress for Medical Electrology and Radiology will be convened at Berne, Switzerland, September 1-6, 1902. The principle themes for discussion will be the present status of electrodiagnosis, surgical electrolysis, radioscopy of the internal organs, X-ray accidents, and the danger of high tension industrial currents.

Holiday Course in Paris.—A holiday course will be held in the School of Medicine of Paris in the general pathology laboratory by Dr. Desgrez, supernumerary professor, Dr. Henri Claude, hospital's physician, and Dr. Balthazard, preparer in the laboratory, under the direction of the Professor Bouchard. The subject studied in the course will be urinary semeiology, clinical analysis and cryoscopy, examination of the blood and of other pathological secretions and excretions. The course is of twenty lessons and will last from July 20th to August 20th.

Negro Insanity Increasing.—Physicians in the State of South Carolina are greatly concerned over what they believe to be the alarming increase of insanity among negroes. According to estimates made by Dr. Babcock, superintendent of the State Lunatic Asylum, this condition now is worse than ever before. Many reasons are assigned, but it is the universal opinion that the common use of drugs, opium and cocaine being mostly used, and bad whiskey is in a large measure responsible. Ten years ago the suicide of a negro was such a rare occurrence that it attracted universal attention. Nowadays such an occurrence is unnoticed. There are probably more insane negroes in the State institution at Columbia than at any other time in its history. They are sent in from all sections of South Carolina, the majority going from towns and cities. In Charleston crazy negroes are picked up almost every day, and while many of them are released after a brief term in the hospital, a considerable number develop such violent symptoms that it is found necessary to ship them to Columbia. It is seldom that the insane negroes are cured, and many of them die after violent suffering. The State authorities give the colored people the most humane treatment, yet it does not seem possible wholly to restore their minds.

Army Surgeons Wanted.—Out of 129 candidates for appointment as assistant surgeons in the army, only eighteen have passed the examinations recently held. The Surgeon General of the Army is greatly disappointed at the showing of the doctors, and almost despairs of filling the vacancies now existing by the autumn, when the services of a number of young surgeons should be available to relieve those whose terms of duty have expired in the Philippines. An army examining board has been in session in Washington since last April passing upon the qualifications of all young doctors who have been authorized to appear, with the result that forty-eight vacancies still remain unfilled, with but few applicants on file to be passed upon. The present situation is most embarrassing to the War Department and is unprecedented in the history of the corps. Usually there is not the slightest difficulty in securing excellent material from civil life for the Medical Corps. The Medical Corps of the Army, in fact, has been considered one of the most desirable branches of the service for men just entering from civil life, on account of the rank and pay the new appointee receives. Next October the Army Board will hold another examination, and meanwhile an effort will be made to secure the attendance of a large number of candidates well qualified for commissions. The following are the doctors accepted, and who will be appointed in the order given: William H. Moncrief, Atlanta; Reynold M. Kirby-Smith, Sewanee, Tenn.; George L. Collins, Boston; Nelson Gapen, Washington, D. C.; William T. Davis, Versailles, Ky.; Charles F. Morse, Montpelier, Vt.; Samuel E. Lambert, Mobile, Ala.; Theodore Lamson, Newton, Mass.; Hayward S. Hansell, Atlanta, Ga.; Junius C. Gregory, New Kent County, Va.; Clarence H. Connor, Clinton, La.; J. W. Grissinger, York, Penn.; Will L. Pyles, Washington, D. C.; Thomas Devereaux, Minneapolis, Minn.; William H. Smart, Washington, D. C.; Robert H. Pierson, Syracuse, N. Y.; Cary A. Snoddy, Nashville, Tenn.; Harry S. Purnell, Berlin, Md.

Medical Society Combination in Boston.—The Boston Society for Medical Improvement and the Suffolk Medical Society are to try a plan for one year of combining their meetings during the coming winter, looking forward to the establishment of an Academy of Medicine.

A Doctorless Community.—We are advised by a correspondent that the town of Avon Park, De Soto County, Florida, is not honored by the presence of a physician. Here is an opportunity, especially for a doctor with horticultural as well as medical proclivities.

Vital Statistics of Boer War.—The London medical journals have been studying the vital statistics of the South African war, which are now practically complete. According to the calculations of the "Hospital," 5,776 officers and men were killed in action, and 2,019 died of the wounds which they received. The deaths from disease amounted to 13,272, and it is said that these figures, large as they are, compare favorably with those of preceding wars. One noticeable fact is the very high proportion of officers killed and wounded, and another the high death-rate, from disease, among privates. In action, one officer was killed to every 10.15 men, and one officer was wounded to every 11.34 men. But of those who died from disease, only one in every 38.5 men was an officer. This is partly accounted for, doubtless, by the recklessness with which the "Tommies" drank polluted water. The number of invalids sent home during the war was about 70,000, and of these more than 6,000 died or left the service. The vast majority, of course, were restored to health. To prove that the war, after all, was not a big one, the "Hospital" quotes the figures of the battle of Gravelotte, in which the victorious Germans had 328 officers and 4,900 men killed and nearly 15,000 wounded.

Obituary.—Dr. Ernest Potter Jenks of the Vanderbilt Clinic, died on Wednesday, at 100 West 118th Street, of Bright's disease. He was a graduate of Brown University and of the College of Physicians and Surgeons. He leaves a widow.

Dr. William N. Fisher, a well-known physician, died at the Columbia University Hospital in Washington last week, as the result of a fall down the elevator shaft of that institution on Wednesday night. Dr. Fisher had called to see a patient and on leaving walked into the open door of the elevator shaft. His skull was fractured and he did not regain consciousness. Dr. Fisher was born in Richmond in 1873 and moved to Washington in 1876.

SPECIAL ARTICLE.

THE NEW SURGEON-GENERAL.

William Henry Forwood, M.D., LL.D. (Georgetown).

The new Surgeon-General was born in Brandywine Hundred, Delaware State, September 7, 1838. He attended a private select school from childhood to his fourteenth year, the public schools in Chester, Pa., and then took a two years' course, including Latin and

Greek, as resident student at the Chester Academy, Chester, Pa., graduating in 1857. He entered the Medical Department, of the University of Pennsylvania, was graduated March, 1861, and was appointed assistant surgeon in the Medical Corps of the regular Army August 5, 1861. From this time he saw active service in the field, serving under many commanders and being executive officer and surgeon with many divisions in the Civil War. He was on the field in the following battles: Siege of Yorktown, Mechanicsville, Va., Gaines' Mill, Va., Savage Station, Va., Malvern Hill, Va., Bull Run, 2d, Va., South Mountain, Md., Antietam, Md., Stoneman's Raid, Va., Gettysburg (Fairfield), Pa., Kelly's Ford, Va., Brandy Station, Va., and several other encounters of smaller magnitude, including a fight with the Indians near Fort Zara, Kansas, in the summer of 1868.

In the field during the war his service was always with the troops at the front. He attended to the wounded under fire many times, and in the night after the battle of Gaines' Mill, Va., assisted by two men, he succeeded in passing the enemy's lines and brought off Lieut. James F. McElhone, 14th Inf., from a point on the field where he had fallen severely wounded during the day.

WILLIAM HENRY FORWOOD, M.D., LL.D.

His horse was killed under him at the battle of Fairfield near Gettysburg. His escape from the enemy under fire is related in the history of the 6th Cavalry by Col. Carter, page 79. He was severely wounded through the right breast at the battle of Brandy Station, from the effects of which he had much trouble for many years.

He was the only medical officer at Fort Riley, Kan., during an epidemic of cholera in September and October, 1866, when there were 59 cases and 27 deaths (Surgeon-General's Reports), and during a leave of absence in the fall of 1870, he volunteered to nurse yellow-fever patients at the Quarantine Station near Philadelphia, Pa., and spent nearly the whole of his leave there, where a large number of cases occurred, in order to gain experience with that disease which he had never before had an opportunity to see.

Among other important points in Dr. Forwood's record is that of his service at Whitehall Hospital, near Bristol, Pa. He built the hospital and commanded it for nearly a year and a half. It had a capacity of 2,000 beds. Much important work was done. His rank at that time was only that of first lieutenant. During his tour of service at the Soldiers' Home he performed a large amount of general surgical work, including many important operations, which were exceptionally successful. At the same time he was professor of military surgery in the Army Medical School and professor of surgical pathology in the Georgetown College. Dr. Forwood's services in this latter capacity were recognized by the conferring upon him of the complimentary title of LL.D. by Georgetown University. During this time he was successively member and president of the Army Medical Examining Board for a number of years.

General Sheridan made several expeditions to the Rocky Mountains regions, taking with him many important personages, including the President of the United States, the Secretary of War, Senators, Governors, etc., and in all cases he selected Dr. Forwood to accompany the party as surgeon and naturalist. His collection of specimens were important; those relating to mineralogy and geology being deposited at Yale University and those relating to botany at Harvard and at the National Museum. His collection in the Museum is separately catalogued, and contains many new specimens.

Dr. Forwood planned and built the 1,000 bed hospital at Savannah, Ga., and the Montauk hospitals for the returning army from Cuba. The details of his work at Montauk are given in the Annual Report of the Surgeon-General for 1898, pp. 240-246. The first tent and the first board became available on August 8th, and sixteen days later he had 1,500 patients in bed under the care of physicians and nurses, and 1,700 beds were ready for occupation. An average of 100 carpenters a day worked without regard to hours, including Sundays, and during the first thirty days of the existence of these hospitals 9,000 patients passed through them, being received and disposed of as their cases demanded.

Among Dr. Forwood's publications the following may be noted:

Arrow-head as the Nucleus of Vesical Calculus. Circular No. 3, Surgeon-General's Office, 1871, page 260. At least 100 reports in similar form on various medical and surgical subjects, sent to Army Medical Museum with specimens at various dates.

Sphenes from Delaware County, Pennsylvania. Proceedings Academy of Natural Sciences, Philadelphia, Pa., 1876, page 176. [These were a new species of sphene of remarkable size and color never found before or since. They were asked for by Tiffany & Co., to take to the Paris Exposition, and by the National Museum to exhibit at the World's Fair in Chicago. They are now on loan exhibit in the National Museum.]

Observations on Flora, etc., during journey through portions of Wyoming and Montana with collection of specimens, Summer, 1881, Report of Lieut.-Gen. Sheridan, September 20, 1881, page 27.

Geological and botanical report, with large collections of specimens, distributed to Yale, Harvard, and the National Museum. "Report of an Exploration of Parts of Wyoming, Idaho, and Montana, Lieut.-Gen. Sheridan, August and September, 1882," page 36, maps and illustrations.

Labor among Primitive Peoples, Geo. J. Engelmann, pages 13, 84 and elsewhere in the work. 1884.

Shall Army Medical Officers Engage in Private Practice? Chicago Medical Journal and Examiner, September, 1884, page 259.

Hydrophobia and Imagination. Chicago Medical

Journal and Examiner, Vol. 53, August, 1886, page 125.

Weapons of War. Fourth Annual Report, Association of Military Surgeons, 1894, page 690.

Management of a Post Hospital, Critical Review. Journal of the Military Service Institution, Vol. XV., page 553, 1894.

Chapter on Military Surgery in "System of Surgery by American Authors," 1895, Vol. II., page 191.

Diagnosis and Identification Tags. Fifth Annual Report, Association of Military Surgeons, Buffalo, 1895, page 456.

Plea for Earlier and More Permanent Treatment of the Wounded on and Near the Battlefield. Sixth Annual Proceedings Association of Military Surgeons of the United States, Vol. VI., 1896, page 152.

Hernia Operations. Annual Report, Surgeon-General U. S. Army, 1896, pages 97-98.

Military Surgery. International Text-Book of Surgery. Collins and Gould. Vol. II., chapter XXX., 1900.

Selection and Early Care of Recruits for the Military Service. National Medical Review, July, 1898.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, June 21, 1902.

CORONATION HONORS—NEW PEERAGES, MEDICAL AND OTHER—DOCTORS AND WESTMINSTER ABBEY—SOCIAL DISABILITIES OF THE MEDICAL PROFESSION—THE ARMY MEDICAL SERVICE—THE MIDWIVES BILL.

The question which at this moment most fiercely agitates the celestial minds of the leading members of the medical fraternity is that of Coronation honors. There is sure to be a grand pyrotechnic display of "stars" of various magnitudes, "crosses," and "ribbons" of one kind or another. "Garters" are not for such humble folk as doctors. A new Order of the Golden Fleece might well be created for the decoration of certain specialists whose professional skill is largely applied to the evacuation of what Rabelais calls the *aposthume pécuniaire.* In the meantime the profession has to be content with such minor bubbles of the "Fount of Honor" as baronetcies, knighthoods, and companionships of the Bath and the recently founded Victorian Order. Lord Lister is, and is likely to remain, the only medical peer. Had Sir William MacCormac lived to witness the Coronation it is possible that his ambition might have been gratified. With an eager desire, rare even in a country in which snobbery grows with a rank luxuriance unknown in any other part of the world, the poor man longed to be a lord. Such an ambition is the less intelligible since he was childless and could not therefore transmit his titular honors. MacCormac's avidity for such distinctions must have been the source of many a snub that would have galled a prouder spirit to the quick. It is well known that those things are, as a rule, bestowed on the principle "Ask and you shall receive." MacCormac's importunity in asking won for him a title of which it is to be hoped he did not know; he was known at Court as the "Solicitor General." Who are to be the fortunate ones whom the King is to delight to honor? No one knows. There is so much chance and even caprice in the bestowal of such distinctions that even those most behind the scenes at Court cannot be sure up to the last moment that any given "solicitor" will receive anything.

I said just now that no peerage would probably fall to the medical profession. But a strictly unofficial list of new peers is current here which includes the name of one very eminent physician. It is said that Sir John Williams, the distinguished obstetrician, is to be Lord Deliver Us. Others of the same creation, as the heralds say, are Sir Edward Cassel, the Hebrew philanthropist who gave the King money to found a sanatorium, who is to have the title of Lord Help Us; Sir Thomas Lipton, known to you as a yachtsman and to us better as a provision merchant, who is to be Lord Preserve Us; and Sir George Lewis, the Jewish Attorney, who is supposed to have been useful to King Edward more than once in the past (His Majesty has a somewhat extensive and variegated "past," if reports speak the truth) and who will therefore take the appropriate designation of Lord Defend Us.

There is much heart-burning among members of "Society" about the difficulty of getting seats in Westminster Abbey, and among others the physicians of the Royal Household consider themselves slighted because they have not been invited to be present at the ceremony. I suppose they have some reason to complain of this as an indignity. Doctors in this country are accustomed to take a back seat in a social sense everywhere, and they take it with such grace as they can; but they may well feel resentful when even a back seat is not given them. The slight is all the more keenly felt as a proposal lately made to the King on behalf of the Court that they should have a distinctive uniform was curtly refused by His Majesty with the remark that the doctors looked very well in black velvet, which is the ordinary Court dress.

The social disabilities attaching to the medical profession—I do not say to individual members thereof—is becoming a very sore point with many. The majority of civilian practitioners care little about the matter, but in the services, especially in the Army, it is a cause of much discontent. In the case of the Army, indeed the social difficulty, much more than any other grievances real or supposed, has led to the depletion of the medical service. Men of spirit and self-respect naturally would not enter a service in which they were treated as the social inferiors of combatant officers, who might be their own brothers or cousins. At some of the military clubs medical officers are systematically blackballed. The Court sets the example of this social ostracism, for even officers who have had the titular distinction of Honorary Physician or Surgeon to the King bestowed on them in recognition of good service are never invited to Court "functions." The present Secretary of State for War, Mr. St. John Brodrick, has shown a praiseworthy disposition to make the medical service of the Army attractive to a good class of men, and it is generally admitted that all substantial grievances have now been removed. But as long as the sentimental grievance continues to exist, the men who would make the best officers will continue to seek other spheres of activity.

The Midwives Bill passed its third reading in the House of Commons a day or two ago, and it is pretty certain now to become law during the present session. It virtually establishes free trade in midwifery practice, emancipating the midwives from anything like effective medical control. The Government is evidently determined to push the measure through, and their big majority of faithful henchmen who vote as they are told enables them to do what they like. A great howl will doubtless go up from the doctors, but they will get scant sympathy from the public for they have allowed a few noisy nonentities to appear as their spokesmen, and the ravings of these futile folk have disgusted sensible people. There can be no doubt at all that legislation for the provision of help for poor women in their hour of travail is urgently needed, and the promoters of the Midwives Bill have striven, according to their lights, to remedy a crying evil. Had the medical profession coöperated with them from the first, in a fair and helpful spirit, a really good measure would have been framed. But they allowed themselves to be represented as opposed to all legislation, and came forward with offers of help only when they saw that legislation was inevitable. The situation recalls the passage in Johnson's famous letter to Lord Chesterfield, in which he asks if a patron is not one who watches the struggles of a drowning man in the water without making any effort to go to his assistance, and when he has fought his way to safety comes forward and encumbers him with help. For the same reason that Johnson dispensed with patrons, the promoters of the Midwives Bill have dispensed with the help of the medical profession. The result is a measure which, while providing for a supply of trained midwives for those who can pay for the luxury, leaves poor women who cannot pay to the tender mercies of ignorant and dirty women who practise midwifery without any qualification for the work.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

ACCIDENTS DURING CHLOROFORMIZATION—GANGRENOUS APPENDICITIS—CONGENITAL FISSURE OF THE NOSE—ELIMINATION OF PHOSPHATES IN ACUTE DISEASE—PHLEBOSCLEROSIS OF THE SUPERFICIAL VEINS OF THE EXTREMITIES—RETENTION OF CHLORIDES DURING NEPHRITIS—THE BLOOD IN VARIOUS FORMS OF EXPERIMENTAL TUBERCULOSIS IN THE GUINEA-PIG—THE ORIGIN OF DAUGHTER HYDATID CYSTS—A VARIETY OF DIPLOCOCCUS ASSOCIATED WITH THE BACILLUS OF TUBERCULOSIS IN MENINGITIS—SPECIFICITY OF THE CHANCROIDAL BUBO—MUSCULAR GLYCOSURIA—OCULAR SYPHILIS.

DURING the early part of last month the French societies held numerous interesting meetings. The following subjects will reward the attention of our readers:

LABORDE, at the Academy of Medicine, May 13, 1902, recalled apropos of the recent discussion on chloroformization the fact that the vapors of this drug are able by their irritating action upon the nervous expansion within the nasopharyngeal mucous membrane to determine a brusque arrest of the heart and respiration. This paralysis occurs, moreover, very easily if the subject be put under chloroform during a state of very great excitement. In order to prevent as far as possible this cause of death, which is always imminent, as soon as one approaches the nose of a sick person with a compress soaked with chloroform it is necessary to decrease the unnecessary excitement of the patient and the susceptibility of the terminal expansion of the fifth cranial nerves. The best means, according to the author, of accomplishing this purpose consists in giving a preventive injection consisting of hydrate of morphine, 0.10 gram, sulphate of atropine 0.01 gram, sulphate of sparteine 1.00 gram, distilled water 10 grams to every individual to be chloroformed. Irrigation of the nasal mucous membrane and of the pharynx and glottis with a concentrated solution of cocaine is also of great benefit in suppressing the susceptibility of these regions. It is also necessary to have care to keep the tongue forward in the mouth with special forceps during the entire duration of the chloroformization, thus avoiding a sliding of this organ backward over the orifice of the glottis, thereby provoking asphyxia, and being ready to carry out rhythmical traction on this organ in case unfavorable symptoms arise.

QUÉNU, at the Society of Surgery, May 7, 1902, said that it is necessary to distinguish the various forms of gangrenous appendicitis from the point of clinical course according to whether or not the gangrene appear primarily or secondarily, and whether the appendical process be or be not walled-off, which will determine the gravity of the prognosis. He cited one case of this class in which death followed by septicemia, although the abdomen had been opened and the abscess cavity freely drained. It was carefully washed with peroxide of hydrogen. At the autopsy there were found various lymph-nodes broken down into abscesses precisely like the large one opened about the appendix. In his experience he has seen only one case of appendicitis with primitive gangrene, in a seven-year-old child who had had symptoms of appendicitis several months previously. It was seized in the night with active pain in the right iliac fossa and a fever of 38° C. Over McBurney's point there was tenderness, on pressure, extending toward the middle line and even into the left flank. He decided upon an immediate operation which was carried out on the day of the beginning of this attack. When the abdomen was opened putrid liquid and a gangrenous lymphangitis in addition to appendicitis were found. Like Jalaguier he feels that pain localized at McBurney's point really corresponds not so much to appendicitis as to lymphatic adenitis at the ileocecal angle. This is in fact the only explanation which can be furnished of the fact of the fixidity of the pain at the point of McBurney, which contrasts singularly with the variability of the position of the appendix. The diffusion of toxic products in these nodes multiplies as a rule the number of tender points and furnishes a very good index of the gravity of the appendicitis. In illustration of this fact he mentioned a case upon which he had recently operated. The diagnosis of gangrenous appendicitis rested not only upon the gravity of the general condition of the patient, but also upon the diffusion of tenderness toward the middle line and toward the left side. He therefore thinks that with a careful study of tenderness on pressure it is possible to make from the outset a diagnosis of gangrenous appendicitis and therefore to practice early intervention which is necessary in all these cases.

KIRMISSON described the case of a ten-year-old girl who presented a congenital fissure of the right nostril without any other malformation of the face. In order to remedy this deformity the author freed the skin around the nostril and was thus able to build up an orifice of fairly normal aspect. The final result was not by any means bad from the point of view of cosmetic effect.

ACHARD, at the Medical Society of the Hospitals, May 9, 1902, read a paper concerning the elimination of phosphates during acute sickness. He said that it follows from the researches which he has made with Laubrey and Thomas that in acute diseases which are accompanied by a decrease in the elimination of chlorides there is not a constant parallelism in the ratio in the urine between the chlorides and the phosphates. It is true that among asystolics under the influence of improvement produced by rest in bed, milk and digitalis, one may see at the same time an increase in the volume of urine, in the total of chlorides and of phosphates, because the insufficiency of the kidney circulation disappears, but in other cases of acute disease this concordance usually fails. The elimination of phosphates is frequent and one may often observe it in advance of the crisis in chlorides, even in typhoid fever, at a period when the general condition of the patient is not improving. On the other hand these discharges of phosphates may fail while there are present crises, thermic diuretic and of chlorides. A proper diet no doubt influences a decrease in the total of phosphates thus discharged. On the other hand it is not one of the causes of these discharges themselves because they supervene equally well after invariable alimentation. The subcutaneous injection of the glycerophosphate of soda in a dose of 3 grams, representing approximately phosphoric acid 1 gram, increases the total of phosphates in the urine in healthy subjects. In acute disease it is also ordinarily followed by an augmentation of this salt, a fact which is not favorable to the hypothesis of a retention, but the interpretation of this phenomenon is more difficult in the case of phosphates than of chlorides because the falling-off of the phosphates is less pronounced, the discharge is less marked and the variations more numerous. Likewise a study of the phosphates seems to offer less clinical interest than do those of the chlorides in the matter of appreciating the appearance of the crisis, which is determined by acute disease. So far as the diagnostic value of the elimination of phosphates is concerned he states that there is great doubt. In typhoid-fever patients, for example, the average of this salt before a total discharge may retain at a high level (2 to 2.61 grams), while during acute tuberculosis, complicated by typhoid fever, it rests at a low level (1.11 grams). Thus apparently a phosphaturia in exaggerated degree never characterizes tuberculosis.

Souques showed in the name of Jauvier and himself a forty-year-old man afflicted with pulmonary tuberculosis and at the same time with a chronic induration of the superficial veins of the extremities, being more particularly the external and internal saphenous veins and for the most part the superficial venous trunks of the forearm and arm. The other veins of the skin in various parts of the body escaped. No varicosities could be found anywhere. These alterations in the veins of the extremities appeared insidiously without giving any symptoms of pain or of edema. According to Letulle these lesions are quite different from those of common chronic phlebitis and appear to constitute a special anatomical and clinical type, which might be designated under the name of phlebosclerosis. The cause of this affection is not entirely obscure, but the action of various factors is acknowledged by authors, for example, tuberculosis, chronic lead-poisoning, alcoholism, etc. Their claims need corroboration.

Achard has been studying the subject of retention of chlorides in nephritis with Claude and Loeper and aiming to explain the chloruria of alimentary origin in subjects afflicted with nephritis. In acute nephritis there is observed a retention of these salts similar to that which he has recently described in other acute affections which are not complicated by kidney disease. It is not therefore necessary in order to explain hypochloruria, which is generally very pronounced, that some difficulty of special relation with elimination be created by the kidney lesion. In subacute nephritis these phenomena, of course always variable, are generally less in degree than they are in acute nephritis. So far as chronic interstitial nephritis is concerned retention is observed just as soon as acute relapses occur and notably during the uremic seizures. In addition to these circumstances the kidney can perfectly well eliminate chlorides taken in by mouth almost as well as in the healthy subject. Nevertheless there is occasionally a hypochloruria in these chronic nephrites. From these facts it follows that nephritis, acute and chronic, presents a falling-off in the total chlorides in the urine which cannot be properly considered a direct effect of alteration in the kidneys.

Claude and Zaky reported at the Society of Biology, May 10, 1902, that they had inoculated 26 guinea-pigs with an equal quantity of tubercle bacilli at the the same point on the skin of the stomach. Of these animals 21 underwent various forms of treatment (lecithin in different dosage, alone or combined with creosote or with sulphate of iron). The five others were kept apart by themselves without treatment. Of these five all died at the end of ninety days and a study of their blood showed a progressive decrease in the various hematic elements and in the total of hemoglobin and a distinct increase in the number of leucocytes. As to the latter more particularly the quantity of polynuclear cells exceeded 80 per cent., while the various forms of mononuclear cells decreased and the eosinophilic cells disappeared altogether. The guinea-pigs which were treated survived a much longer time. Seven of them are still alive and in good condition. Those which died presented at the autopsy sclerosizing lesions of various organs and mechanical alterations like infarcts and hemorrhages, but in all tuberculosis was more or less altered in its evolution. Moreover in the animals which were treated the blood showed characters entirely different from the five which were treated. The number of red blood-cells was very much increased or occasionally diminished to a very slight degree. The hemoglobin followed the same rule. Leucocytosis was very inferior to that observed when tuberculosis is following a rapid evolution. In point of fact the number of polynuclear cells was only slightly augmented and the greatest increase was observed in those animals which died after a very short course of treatment. Those which lived a long time or which are living still show an average number of polynuclear cells and pseudo-eosinophilic cells of 60 per cent. The true eosinophilic cells on the contrary reached a total of 12 per cent. during the period of initial reaction to the infection and then slowly decreased. The mononuclear cells, the transition cells and the protoplasmic vacuoles increase in favorable cases. All these observations are somewhat analogous to those which are found in cases of human tuberculosis.

Déve read a paper on the origin of daughter hydatid cysts, embracing observations which he has made not only upon the animals but in mankind. He tends to show that the formation of echinococcus cysts seems to embrace multiple origins, because they can be produced (1) from cellular elements in the cuticle, (2) in the germinal membrane, (3) in the proliferating vesicles, (4) from cellular elements not differentiated, comprised within the proliferating vesicles, (5) from the scolices, (6) from preexisting daughter vesicles by an effacement and obliteration in number of their walls. These cystic formations, notwithstanding these differences in origin, possess when once developed the same constitution and characteristics as do the mother cysts. Therefore it is not necessary to oppose these various theories one against the other which diverse authors have offered to explain their origin. None of these various processes once begun need be necessarily exclusive of the others.

Delille and Babonneix described a variety of diplococcus associated with the bacillus of tuberculosis in a case of tuberculous meningitis secondary to tuberculosis of the brain. They found this germ in very great number and with morphological characters closely similar to those of the pneumococcus in the cephalorrhachidian fluid obtained by lumbar puncture. They grow on all the media and at the temperature of the laboratory. They cannot therefore be the ordinary meningococci, but a species of germ closely allied to the enterococcus of Thiercelin. An examination of the blood in this patient showed, as well as numerous of these diplococci free and contained in the polynuclear cells, about 30 per cent. of lymphocytes, the presence of which could hardly be explained except as being excited by the bacillus of tuberculosis.

Simond stated that by inoculating with the pus from chanchroidal buboes upon blood serum he obtained cultures of the bacillus of Ducrey, associated with the microbes of a secondary infection. These facts should be added to those observed by Bezançon to prove the specific nature of chancroidal bubo. They show equally well the utility of employing as a culture medium this serum preparation in order to cultivate the bacillus of soft chancroid.

Gadéac and **Maignon**, at the Academy of Sciences, April 28, 1902, discussed the subject of glycosuria of muscular origin, having established the fact that in guinea-pigs and dogs ligature of a paw or the destruction of a mass of muscle always determines the appearance in the urine of glycogen with or without glucose. This led them to make similar observations upon wounded men. They found that in some types of total fracture of the extremities both in children and in adults the elimination of glycuronic elements, especially of glucose, is present beginning in general two or three days after the accident and persisting three to four weeks, that is to say, until the local troubles are eneirely gone at the point of fracture. Glycuronia always precedes glycosuria, but it is not quite as constant. When present it is proportionate with the gravity of the lesion. It is therefore much more abundant when the fractures are multiple. This excretion of the sugary elements is probably of muscular origin because in animals sacrificed after the destruction of a paw the muscles were not found in a healthy condition, but showed traces of sugar; the muscles in the injured limb especially abundant in sugar.

Galezowski, at the Society of Dermatology and Syphilography, May 5, 1902, presented a young woman, suffering from an interstitial karatitis and lesions of the eye due to hereditary syphilis. Considerable improvement resulted in this patient from mercurial inunctions and the internal exhibition of adrenal extract. In syphilitic affections of the eye it is impossible to assure a permanent cure wthout prolonging mercurial inunctions for a long time(two years). In the hands of this author the iodide of potassium has never given any result in these patients.. It is also possible to convince one's self by an analysis of the urine that the mercury is eliminated more rapidly and in larger proportion in patients who are taking at the same time the iodide of potash. He therefore concludes that the influence of mercury upon the system is much enfeebled by the so-called mixed treatment.

SOCIETY PROCEEDINGS.

AMERICAN THERAPEUTIC SOCIETY.

Third Annual Meeting, Held in New York, May 13, 14 and 15, 1902.

Business Meeting.—At 11:30 A.M. Dr. Reynold Webb Wilcox read the presidential address on the Review of the Progress of Therapeutics for the Last Twelve Months. [See Medical News, page 1064.]

Address of Welcome.—This was delivered by Dr. T. E. Satterthwaite, who said in part: We welcome you with the conviction that you will help to make the third annual meeting of this national society the best of the series. Organized in Washington, through the hearty coöperation of the Therapeutic Society of the District of Columbia, in the spirit of the motto of our Society, *Cito, tute, et jucunde,* and with the aid of colleagues who chanced to be in attendance at the eighth decennial convention for the revision of the U. S. Pharmacopea, we were fortunate in having both experience and the concurrence of representative men from most of our larger cities. By happy coincidence the idea of founding a national therapeutic society had occurred simultaneously to many minds. Dr. Horatio C. Wood of Philadelphia, a man distinguished on both sides of the Atlantic, as a leader in practical and scientific therapeutics was first president. Our President, Dr. R. W. Wilcox, presided at the second annual meeting in Washington, May 7-9, 1901. Smoothness and harmony characterized the deliberations, executive and medical. Papers were numerous and discussions thorough and brilliant. Our reception was cordial and generous. It then became apparent that we had a field of usefulness before us which would yield results equal to those of any other national society. The objects of this society are the study and advancement of therapeusis. Other medical associations of the national type devote themselves to any and all topics relating either to pathology, etiology or symptomatology of general medicine or surgery, or to any special department of them; while our distinctive aim is a study of the present and future of therapeusis in the broadest sense. We are to have papers on therapeutics from each of the recognized departments of medicine by eminent specialists who are men of national and international reputation. The spirit of commercialism cannot enter our meetings. The regulations governing our Society membership state that it is confined to "reputable physicians engaged in the regular and active practice of medicine, who are at the same time interested in materia medica and therapeutics in any or all branches; or others engaged in legitimate research and that abandonment of active practice or legitimate experimental research shall nullify membership." Act X., Section 3, of our By-laws states that "no paper, report, abstract or other communications either written or verbal which directly or indirectly commends or advertises any secret, patented or trademarked product or method of treatment shall be presented to or received by the Society nor shall any discussion upon such product or method be permitted" except for the purpose of recording adverse action upon it. Recognizing and admiring the energy, intelligence and ability of our great pharmaceutical houses and recognizing that American applied pharmacy and methods are an object lesson to the world, we propose to discountenance any and all methods which may be construed as favoring commercialism. You have honored us by accepting our invitation to be here. We are duly conscious of the honor and responsibility. New York is the medical center of the country, including as it does five boroughs with not less than three and one-half millions of inhabitants, spread over an area of 325 square miles, with its seventy-five or more hospitals to say nothing of its institutions for the care of the sick; its eight or more medical schools, its thousands of students and its forty or more medical journals; its pharmaceutical establishments and bureaus of medical supplies. And there is no cessation in the city's activities, medically, from one year's end to the other.

Climatic Treatment of Tuberculosis.—This paper was read by Dr. G. E. Tyler, of Denver, Colo. There is unanimity of opinion among phthisiologists that the atmospheric question is the most important of all in treatment of pulmonary tuberculosis. The ideal climate for tuberculosis is one with pure air, little humidity, abundant sunshine, low wind velocity, and low atmospheric pressure. The tuberculous individual must absolutely have the purest possible air; it matters not how favorable the climate, if the patient shut himself indoors, sleep with his windows closed and take quarters in a thickly-populated district he will not improve. Humid climates enervate the already depressed consumptive, increase expectoration and aggravate his cough. That climate is best which has the maximum amount of sunshine; first, because such a climate has a low percentage of humidity, and, second, because the patient is far more likely to be out of doors in sunshiny weather. The direct rays of the sun also have a beneficial effect. Altitude or atmospheric pressure is a very potent climatic factor. Atmospheric pressure varies inversely to the altitude. A patient with an overtaxed heart should never be sent to a high altitude. Organic heart disease is a positive contraindication to high altitudes. If the heart be overtaxed at a low altitude it aggravates the condition and hastens the end; if the patient go to a high altitude and if compensatory hypertrophy has occurred at the low level, compensation is shortened. The neurasthenic does badly at high altitudes. One must always consider the stage of a disease in advising a change of climate. The patient's responsiveness to heat or cold is important. It is folly to send a person away for climatic reasons and not have him under competent medical supervision. Do not send a sick young person away from home if he be strongly attached to his family. Homesickness is likely to come on, energy to be lost, despondency to ensue, nutrition to suffer, and all climatic advantages overbalanced. Yet, if the change be made, it should be made early while recuperative powers are active. The patient's finances are important. The poor man from the city can seldom afford to hazard a change. Instead of finding work at proper remuneration he meets disappointment; rest, not work, is what his condition demands. Climatic treatment is the most important of all remedial measures. Properly selected climates cause many arrests and a large percentage of cures. Early diagnosis is essential. Cavity cases are seldom benefited. Profuse secretions are contraindications. Climates with high winds are to be avoided. That temperature should be selected in which the patient is most comfortable. The indigent, rebellious, the nostalgic should not be sent away for climatic treatment. In all cases open-air life and medical supervision are essential.

Medical Treatment of Pulmonary Tuberculosis.—Dr. Jesse Shoup, of Washington, D. C., read a paper on this subject. He says that one must rely on drugs which promote metamorphoses which result in healthy tissue construction. The disease cannot be eradicated, so we must conserve the patient's energy whenever it is possible to do so. Those drugs which are bactericidal and eliminated by the lungs must be used to attack the disease *in situ*. Of the first class, iron, arsenic, strychnine, phosphorus and vegetable tonics may be mentioned. The new arsenic preparation, cacodylic acid, seems to be of some benefit in increasing the body weight, lowering the temperature, causing disappearance of night sweats and amelioration of general conditions. Good results are obtained from proteids containing phosphorus. Of the second class of drugs creosote may be taken as a type in ascending doses, given either in cod-liver oil emulsion or vaseline emulsion. Good results have been obtained from the use of icthyol. Of the third group of medicines serums and cinnamic acid multiply the leucocytes. The intravenous injection has been used with good results. Cinnamic acid increases the number of white blood-corpuscles fully 50 per cent. and by setting up an area of active inflammation around the tubercle cures the disease. Shoup uses the following prescription:

Arsenious acid	.065
Carbonate of potassium	1.1289
Cinnamic acid	1.944
Boil with distilled water to make	28.38
Add	
Aqua in extract opium	1.944
Brandy	14.175
Distilled water, q.s	56.7

He begins with three drops after dinner and gradually increases to 20 drops. Serumtherapy in pulmonary tuberculosis has not accomplished all that was anticipated. It has not proved a specific. Thymol, menthol and cocaine are good as intestinal antiseptics. Fever is best treated with rest and cold baths, sponging with alcoholic and mentholic solutions. Atropine, agaricin and aromatic sulphuric acid in fifteen-drop doses seems to be effective in night-sweats. Codeine is the most reliable for irritable cough. Inhalations of oleaginous vapors containing menthol, iodin, carbolic acid or the essential oils quiet cough without disturbing the stomach. For hemoptysis, rest and quiet and ice to the chest, morphine and hydrastin internally and hypodermatically give the best results. Aconite and veratrum viride is useful when the pulse is strong. Gallic acid is good and gelatin injections may be used. Guaiacol carbonate and bismuth subnitrate or tannalbin or tannigen or iodomuth are all good for diarrhea. For the weak, failing heart, digitalis, strophanthus, strychnine and alcohol are used. For insomnia, trional, the bromides, paraldehyde and morphine. Hyoscine hydrobromate may be given in extreme cases. Shoup is of the opinion that patients who suffer from tuberculosis should be told of the existence of the disease. He should not be told that he has bronchitis or a disordered stomach. He must know the way to health is not as the way to the spider's parlor. He must be taught to live correctly. Interest him in himself. Let him use a thermometer and find out at what time it reaches its highest point. Change his climate.

Capillary Area.—Dr. Eli H. Long, of Buffalo, N. Y., read this paper. The term capillary area is an inclusive one with regard to simple tissue elements and a comprehensive one with regard to functions. In our present discussion we will understand the terms to include capillaries, arterioles and venules, the lymphatics and the cells or anatomical units of the tissues; or cells, capillaries surrounding and enclosing them and the vessels of supply and discharge. The importance of considering these structures together appears from the standpoint of function. The term nutritional area is equally applicable and comprehends every possible tissue of nutritive activity, whether possessing sensory, dynamic, secretory or general nutritive function. We are accustomed to speak of "vital organs and vital functions." There are no distinctively vital organs. The vital elements of the body are cells. Life is perpetuated by cell function; death begins with cessation of that function. We are accustomed to regard the heart as a vital organ, it being functionally related to nearly every cell in the body, but the seal of death may be stamped on a man with a heart strong and normal. Death from primary cardiac disease is uncommon. We must look beyond the heart for primary changes that mark the path toward dissolution. The resources of the heart are such that it guards for a long time the life of the individual by compensatory growth and function, and when its resources begin to fail disease is too often first recognized. The circulatory functions should be studied from the capillary instead of from the heart view-point. The peripheral factors are important and relegate to their proper place the subordinate central or mechanical factors. The purpose of the whole circulatory, respiratory and digestive apparatus is to feed properly the cells of the capillary areas. Nature subordinates all of these to the cells. The profession is learning no more important lesson to-day than the elaborations and workings of the great system of cell laboratories—the capillary area of the various organs and tissues. Within this defined capillary area are tissue cells bathed in a nutritive fluid derived from the blood, the normal amount of which depends on the blood-pressure in the capillaries, which is influenced by the amount of pressure of the entering arterial blood and the rate of discharge of the venous. The proper balance of pressure between the arterial and the venous side is all important to functional activity of tissues. Slight variation may be compensated by the rate of lymphatic absorption, but considerable lessening of arterial pressure long continued, or any persistent obstruction of venous current will produce in the intravascular fluid leading to failure of function and edema. The force of the circulation is contributed by the heart, but the force of ventricular contraction is too powerful for the delicate structure of the capillary areas. Hence the mechanism of fine gradation of blood-pressure to suit each tissue, by the fact that blood-pressure within capillaries is much lower than in arteries. Two factors cause the condition, the expansion of the arterial tree and the muscular control of the blood-current, especially in arterioles. Coöperating with these factors the elasticity of the arteries furnishes the means of maintaining a constant uniform blood-pressure.

Changes Due to Age.—With increasing age capillary circulation is altered in two important ways: (1) After puberty, or completion of growth, many capillary vessels disappear. (2) As age advances the arterial walls, in common with other tissues become less elastic. These influences tend to increase pressure within the arterial system. Vaso-constrictor action is a direct protective in other cases, as carbon dioxide in excess, or other toxic substances circulating in blood, stimulates to firmer constriction. Nature is careful to protect the capillary structures in the body by limiting the amount of blood entering them. The function of the arterioles includes dilatation as well as constriction, and these regulate the mechanism of the capillary supply. This regulating function is most important in all ages, but its *conservation as age advances is not surpassed in importance by any matter that claims our skill.* In a given case the condition of the capillary area, nutrition, vascular tonus, its reactionary effect on the heart and circulation, must be studied in respect to its blood-supply. The terms proper blood-supply and nutrition are not synonymous. The blood-supply may be abundant and the nutrition deficient. In vascular disease we find it necessary to discourage overeating and to force elimination. The vascular tonus or reacting power of the arterioles is of the greatest importance. In the treatment of deficient flow of blood into the capillaries, the greatest benefit is derived from measures that induce dilatation of the arterioles. The desirable condition of arterioles is neither contraction nor dilatation, but of good reactive power in either direction. This is the best conception of vascular tonus. Diminution of capillaries must increase arterial pressure. This may be compensated for in part by dilation of the arteries, but throws more work on the heart by the increased resistance which blood-currents meet in restricted capillary system. Lessened elasticity or hardening of the vessel walls induces higher arterial pressure; the increased resistance interposed causes hypertrophy, a compensatory provision of Nature's conservatism whereby pathological changes to which all are subject are postponed for years. Powerful heart action antagonizes arterial rigidity and capillary resistance sufficient to maintain cell nourishment. The heart becomes larger with age. Faulty cell metabolism is of great moment. We have hereto taken into account the venous side of capillary area and its related factors. Through loss of elasticity in arteries the force of the heart's action is unevenly distributed to the capillaries. Active vasoconstriction and lessened capacity of capillary system cause less active flow of blood through this area. The strong heart may overcome venous stasis for awhile, but in time there is less active discharge from the venous area. The eliminative organs, especially the kidneys, have undergone changes similar to those in the arterial wall, through lessening of function, and there is added to venous stasis blood not properly oxygenated. The result is stagnation and toxic effects in tissue cells. A full diet may be surcharged with nutriment. But the trouble is on the other side of nutrition. Catabolic changes are at fault. It is the beginning of a gouty diathesis. Nearly every organ in the body may suffer from cell function failure. Heart, liver and kidneys claim our attention. From hypertrophied heart we turn to dilating heart, sluggish liver and kidneys. The coronary arteries degenerate with others and the heart's nutrition suffers. We have discussed the intrinsic factors; now for the extrinsic: Chief are excesses in diet, alcoholic abuse, and lack of exercise, hastened by clogging tissues, venous stasis and deficient catabolism. The line of prophylaxis is the most important in therapeutics.

Treatment of Capillary Conditions.—Begin early. The battle is against us if we wait till the heart begins to suffer. Restrict diet, alcoholic indulgence and mental work. Abundance of sleep, recreation and proper exercise, elimination by means of salines should be insisted upon. Less nitrogenous food is demanded; proteids should be diminished. Perfect metabolism must be favored, efficient capillary circulation secured and a regimen established to perpetuate the same. All muscular tissue requires exercise to maintain good reactive power. So with arterioles. The most important agents are those that induce capillary exercise calling forth both contraction and dilatation. We thus exert a tonic or stimulating action on cell metabolism and elimination. The daily cold bath seems to meet indications quite fully. It is contraction followed by dilatation of arterioles. Friction, gymnastics and massage are to be commended. In drugs the nitrates well represented in nitroglycerin are very useful in advanced cases in which arterial pressure is excessive. In the action there is lacking the tonic effects of a cold bath. It is a question whether opening arterioles by drugs is the best we can do for these cases, but it is an important thing to do. To relieve the heart by lessening the resistance against which it has to act is an important thing to do. Nitrites cannot be looked upon as ideal remedies. The success of any treatment depends upon a good peripheral circulation. The carbonated brine baths produce much the same effects upon the cutaneous circulation. They rest the heart as well and probably stimulate cell nutrition much more.

Therapeutics of Chromium Sulphate (Green Chromic Sulphate).—Dr. Louis Kolipinski, of Washington, D. C., says that its position as a remedy might be assigned near zinc or manganese. Its exhibition should be in basic combinations, thus developing its primary action. He has used the drug internally in a large number of cases for the past four years and his results have been favorable. He uses the green chromic salt. It has an acid taste and a metallic after-taste, and dissolves slowly in water and in alcohol. It acts as an antiseptic in proportion of 1 to 200. He uses from 1 to 4 grains three times a day, taken before or after meals either in tablets or water solution, and this dosage is not followed by gastric, intestinal or other disturbance. He has demonstrated it to be non-accumulative and non-toxic. It has absolutely no beneficial effect in acid dyspepsia, dilatation of the stomach, ulceration of the stomach, spasmodic asthma, angina pectoris, diabetes mellitus and insipidus, chlorosis, morphinsm, syphilis, tuberculosis, carcinoma, epilepsy, mania, senile dementia, paralytic dementia, spastic paralysis and paralysis agitans. The effects were positive and favorable in cirrhosis of the breast, castration menopause, functional impotency, chronic alcoholism, nervous and pregnant vomiting, neurasthenia, locomotor ataxia, exophthalmic goiter, migraine in all its forms. Numerous cases are cited showing its marked effect.

Recent Advancement in the Management of Diseases of Children.—Dr. Charles Gilmore Kerley, of New York, read this paper. An important advance is marked by the acquirement of a closer knowledge of child-life and of its requirements which has been accomplished through the study of the child as an entity. The child requires pure food, fresh air, and suitable clothing. Artificial feeding of infants now rests on scientific basis, due to the efforts of pediatrists. The milk at their disposal is as pure and safe as is possible. The milk after being drawn aseptically is rapidly cooled and kept at a low temperature, below 45° F., until delivered. An infant requires in its food certain elementary substances, such as fat, sugar, proteids, inorganic salts and water. We must follow mother's milk as the model in preparing an artificial milk. It is the change of the relative proportions in the use of cream, milk, milk-sugar and water, so that they will correspond sufficiently to mother's milk as to be of practical service. Kerley likes the term "adapted" milk in place of modified milk. He also lays great stress on the value of fresh air in sickness and health. The greatest life-saving measure as regards disease rests in the knowledge of the nature and manner of treating summer diarrhea. In these cases the trouble early is in the intestinal contents and not within the intestinal structure. In summer diarrhea the child is poisoned. We give laxatives to clear out the intestine and further remove the putrefactive milk-culture field by substituting a carbohydrate diet. He advocates the use of intestinal irrigation and simple disinfectant drugs. He advises the discontinuance of the milk at the first appearance of trouble; it should not be resumed until the stools approximate the normal and the temperature falls. Sterilized cow's milk, mother's milk and egg-albumin will furnish as good a culture field as grocery milk. Eczema in children is due to faulty nutrition and improper feeding or to gastro-intestinal derangements with the absorption of toxins, products of a faulty intestinal digestion. Lack of cleanliness, excoriating discharges and improper clothing contribute their share. Constitutional measures are advised in the treatment of this disease. Correct the errors in the life of the patient, give him a suitable diet, relieve the indigestion and the skin disease will often disappear without ointments, lotions or the very popular Fowler's solution. Pneumonia should be treated with common sense. The cases are apt to be overtreated, too much clothed, the sick-room kept too warm or inadequately ventilated. Keep the patient comfortable and avoid complications. The first step is to reduce the diet. Illness with fever considerably reduces the digestive capacity of the child. Useless syrups given in cough mixtures in bronchitis and bronchopneumonia grossly upset the stomach when given in the family teaspoon, usually two drams every two hours, and do nothing else. Tartar emetic, ipecac, etc., can be most satisfactorily administered in tablet form. We can do without alcohol in most cases. Local applications to the skin and medicated inhalations, lavage, gavage, baths and packs are excellent in pediatric practice. Allow sick children to rest. Do not bother them every hour in the twenty-four, taking the temperature, giving food and medicine, the bath, the enemas and irrigations. The interval left for rest is very slight. In very severe cases do not disturb the patient oftener than once in two hours. Antitoxin is the drug *par excellence* in diphtheria.

Recent Advances in Gynecology.—Dr. Matthew D. Mann, of Buffalo, N. Y., read a paper with this title. Gynecology has advanced more than any other department of medicine during the last twenty-five years. The most startling recent innovation is spinal cocainization. This started out to become very popular, but of late nothing has been heard of it. It is not so harmless as is claimed. Besides this danger it has very unpleasant symptoms, such as severe headache, vertigo, vomiting and involuntary defecation. That the patient is conscious is also a very grave objection, especially in nervous and hysterical women. The form of anesthesia now in greatest favor is nitrous oxide gas followed by ether. The results are exceedingly satisfactory, much less ether is used and the effect on the lungs and kidneys is not so marked. Antiseptic solutions should be banished from operating-rooms. The disinfection of the hands having been found to be almost an impossibility, rubber gloves are employed. A perfectly aseptic and absorbable ligature must always be a *desideratum*. Catgut and kangaroo-tendon are the best. Catgut can be rendered absolutely sterile by the Bissell method without destroying its strength. In this the gut is soaked in a solution of bichloride of mercury in ether varying the period of immersion to the size of the gut. It is then boiled in alcohol to extract the bichloride. Organotherapy has occupied a great deal of attention. Thyroid extract in certain uterine conditions gives good results, especially in the case of fibroids and in certain cases of menorrhagia. It might be used also in tumors. Ovarian extract does not seem to be of much account. Transplantation of the ovary is possible and pregnancy has followed in some cases. Mammary extract has not given satisfactory results. Adrenalin, both internal and as a local application, hypodermically or mixed with salt solution for hypodermoclysis, seems to be a real addition to the materia medica. Silver in the form introduced by Crédé is an antiseptic and is very powerful in its action and harmless to the system of the patient. The allotropic form (collargolum) has many advantages over the soluble preparations. In the form of Crédé's ointment some striking results have been reported. The Germans have recently introduced the introduction of live steam into the interior of the uterus for the prevention of hemorrhage. This should be done after full preliminary dilatation and is applied from fifteen to twenty seconds. Great care must be taken, as the action may be so deep as to cause entire obliteration of the uterine cavity. It is also recommended in fibroids, menorrhagia, subinvolution and hemophilia. As to the matter of operations there is nothing positively new. The operation for prolapse seems to be the same. Ventral fixation by which the uterus is fastened into and not upon the abdominal wall seems to affect an absolute cure, but is only applicable to women who cannot bear more children. The same is true of vaginal fixation. The question as to when and how the uterus should be removed in cancer is still unsettled. In operations for the appendages a new method of hemostasis has recently been employed. Instead of tying the vessels they are crushed with the angiotribe. The method, however, seems to be unreliable. A considerable advance has been made in diseases of the bladder. Cancer of the rectum has been unsatisfactorily treated. Edebohls removes the uterus in order to get room and then resects, while the author, after separating the rectum below and above the growth and removing the cancer, unites the ends with a Murphy button. There is little new in the treatment of suppuration of the pelvis. When suppuration follows labor, the abdomen should not be opened; it should be attacked from below. Drainage is still in doubt. Some advocate drainage through the abdomen, others through the vagina, while others omit it.

Present Status of Genito-Urinary Therapeutics.—This paper was read by Dr. Eugene Fuller, of New York. The elimination of the gonococcus through the direct result of therapeutic measures is disappointing. The chief reason for the failure lies in the quality possessed by the gonococcus of so burying itself under the epithelial layers or in the mucous follicles as to escape the germicidal effect of the antiseptic solution with which the mucous surfaces are bathed. It should always be remembered in the treatment of gonorrhea that Nature is the chief factor in the elimination of the gonococcus. An expectant treatment, therefore, which may do nothing more than leave Nature alone, is better in its results than a spectacular one which thwarts her. Among the agencies causing defects of urinary drainage are congenital anomalies, strictures, prostatic hypertrophy or tumefaction, neoplasm, calculi and movable kidneys. Diuresis is best effected by the ingestion of a large volume of bland, soft water and not by the administration of drugs. Surgical cleanliness is essential. No anodynes should be prescribed in operative cases. They check diuresis and thwart Nature in her attempt to prevent an infection confined to this urinary tract from becoming systemic. If a patient be brought to the operating-table narcotized, there is an added risk of post-operative death from uremia or sepsis or from a combination of the two. Never give anodynes after the operation. If a patient suffer for any length of time after operation or has developed attacks of suffering, then something is wrong with the operation, with the dressings or with the drainage and the giving of an anodyne masks the cause and does not remove it. It merely staves off as it were, the evil day. The intelligent thing to do in such a contingency is to correct what is surgically wrong and thus relieve the patient. The stupid and weak thing to do is to dope him so that he cannot comprehend what is wrong. A great safeguard to the surgeon in these cases is mental alertness on the part of the patient. If after a urinary operation a patient be drowsy and supremely comfortable, one should always be fearful of uremia and to help to bring about such a dangerously blissful condition by the administration of anodynes is bad practice.

Contributions to Practical Therapeutics.—A paper with this title was read by Drs. Albert C. Barnes and Hermann Hille, of Philadelphia. During the past eight years the authors have been engaged in original research work in chemistry and experimental therapeutics in America and at the Universities of Würzburg, Berlin and Heidelberg. The results of this work, notably that done in Heidelberg, have been published in German scientific journals, the pages of which are reserved for records of original experimental work. A substitute for silver nitrate is silver vitellin, a dark brown powder. Silver nitrate is confined to the surface of mucous membranes, whereas silver vitellin has an intensely penetrating action. It penetrates into deep submucous structure where the gonococci and other pathogenic organisms penetrate. Clinical results indicate that silver vitellin will replace other compounds of silver in treatment of gonorrhea and in diseases of the eye, nose and throat. The solubility of silver vitellin is remarkable. Attention is also called to an easily assimilable organic iron. It is called iron vitellin. It is a red powder completely soluble in water forming a red solution, neutral in reaction, tasteless and odorless.

Etiology and Diagnosis of Valvular Affections.—Dr. Thomas E. Satterthwaite, of New York, considered this part of the subject. Apart from lithemia, which is its most potent cause, arteriosclerosis, the continued fevers, influenza, tuberculosis, and infantile gastro-intestinal diseases are factors. Mitral affections are the most common; that is about 75 per cent. The systolic murmur at the apex conveyed to the left, accentuation of the second pulmonic sound, increased transverse cardiac dulness and faint second aortic are present. Mitral obstruction in 70 per cent. of the cases is associated with insufficiency. The total murmurs in the diastolic interval he puts at 40 per cent. Aortic is about as frequent as mitral in combined lesions. Aortic insufficiency is more common than obstruction. In these cases we have the long heart extending to the seventh or eighth space, the water-hammer and the capillary pulse. Aortic insufficiency is detected in from 60 to 70 per cent. Aortic obstruction is rather common in combined lesions, but is rare as a single lesion. Well pronounced tricuspid affections are extremely rare; about 26 per cent. Bicuspid insufficiency preponderates over obstruction in about 9 to 1. It is seldom recognized during life. The most distinctive sign is the systolic murmur heard over an extensive area including the lower half of the sternum, a little to the right and over the fourth and fifth left intercostal spaces along the sternal line. Another important sign is epigastric pulsation. The jugular pulse is also pathognomonic. Tricuspid obstruction is very uncommon. Of all cardiac affections the pulmonary are the most rare. Among the important signs are displacement of the apex to the left and an occasional thrill over the second or third interspace close to the sternum conducted down its margin. A diastolic murmur intensified by inspiration. Pulmonic embolism occurs in one-third the cases. Wasting disease of the lungs, sepsis, arteriosclerosis and epigastric pulsation also occur. Diagnosis has only been made in about half of the cases by postmortem. Pulmonary obstruction or stenosis is one of the most frequent of the congenital anomalies of the heart.

Prognosis of Valvular Diseases of the Heart.—Dr. Leonard Weber, of New York, said that this depends on the local and general conditions. As to the former the subjective symptoms complained of by the patient, such as pain, shortness of breath, palpitation, dry cough, etc., should not be overlooked by the doctor. They were of great value in connection with other symptoms. In examining the heart it is important at first to get the patient to indulge in some mild form of exercise, such as a rapid run around the office. If the heart goes back to its original condition within a minute or a minute and one-half, then there is no organic disease. As to the general condition, what work can the heart do under the ordinary circumstances? This depends on the state of the arteries, of the heart muscle, etc. The speed of the heart is not so important as is its rhythmic action. The difficulty in arriving at a prognosis lies in the necessity of weighing and striking a balance between symptoms that point in opposite direction. Never be in too great a hurry to express a positive opinion.

Dietetic Treatment of Pulmonary Tuberculosis.—Dr. Wm. Henry Porter, of New York, thinks we should be more liberal in the use of a meat diet; if the beef trust keeps up the price of meat tuberculosis will increase. A good variegated diet is essential. A predisposition to tuberculosis is inherited, not the disease itself. We must first overcome the general malnutrition and then attend to the particular foci of the disease. The most difficult problem is the loss of appetite and the inability of the system to digest food. When this problem is solved recovery will be more readily accomplished.

Physical Treatment of Tuberculosis.—Dr. Egbert Le Fevre, of New York, calls attention to the use of physical means in connection with other treatment for the arrest of the disease. Well-regulated exercise should be taken, according to the stage of the disease and the condition of the patient. Always avoid fatigue. In the early stage of the disease rest is the most important. He also called attention to the use of the pneumatic cabinet. This instrument for the treatment of tuberculosis was killed by overenthusiasm in the profession.

Advances in Special Therapeutics.—The first paper on ophthalmology was read by Dr. D. B. St. John Roosa, of New York, who said there was an exaggerated idea as to the bad influence of atropine in persons over middle life. Eucaine is more apt to produce hemorrhage than cocaine. Sterilized water is preferred by him to chloride of mercury. To put the eye into proper condition for operation, protargol is preferable to nitrate of silver, as it is less irritating. Suprarenal gland has been used several years. Now the active principle of the gland, chloride of adrenalin is used. Ophthalmologists are advancing the use of therapeutic agents.

Advances in Surgery.—Dr. Wm. H. Carmalt, of New Haven, Conn., read this paper. Surgical operations should aim at correct and perfect procedure. Great advance has been made in anesthesia, both local and general. He thinks it better that patients should know absolutely nothing of an operation to be performed upon them. He also spoke of antitetanic serum which had been used with some degree of success.

Advances in Obstetrics.—Dr. Charles Jewett, of Brooklyn, N. Y., said that childbirth is a physiological process; only limited advance had therefore been made in connection with the therapy bearing on it specially. In the prevention of eclampsia he considers morphine better than most obstetricians in American think it to be, but said that there was danger to the child in using the drug too freely. He thought chloroform invaluable in an emergency, but its use should not be continued. The best treatment for eclampsia is prevention.

Progress in Orthopedics.—The development in orthopedics, Dr. Newton M. Shafer, of New York, said has been more influenced by a few men than any other branch of medicine. The tendency to cultivate surgery at the expense of the mechanical art is still too great. Medical schools should be equipped with mechanical laboratories and more attention given to the study of anatomy.

Advances in Dermatology.—Dr. Charles W. Allen, of New York said that it could not be claimed that advances had been made equal to those made in bacteriology and some other branches of study. However, distinct progress has been made in the knowledge of the working value of the iodins, formalin, methylin blue, etc. He also spoke of the X-ray as a valuable aid.

Recent Advances in Laryngology.—Dr. Charles H. Knight, of New York, read a paper on this subject. The term laryngology has grown to cover diseases of nose and pharynx as well as of the larynx. In this rhinological enthusiasm the nose has been looked upon as the probable source of nearly every human ill and ruthless slaughter has been practised. Happily now a saner view prevails. The importance of a well-formed nose to beauty and symmetry of the face is generally appreciated. A recent suggestion for remedy of disfigurement was the possibility of injecting solidifying fats into the tissues, was conceived by Dr. Corning of New York. He immobilized a muscle affected with clonic spasm by surrounding it with a mixture of paraffin and cocoa butter. The tolerance of tissues to this substance led to its adoption for the "saddle-back" nose. The author's own experience in this connection has been discouraging. In syphilitics the condition is complicated by cicatricial tissue. The two precautions to be observed are the perfectly aseptic mixture of fats and to inject it at a proper temperature. If too fluid, there is danger of fat embolism in the lung. Local suppurative reaction may set up. The procedure is not without dangers. The amount used is in proportion to the degree of deformity. Recently in a case six drams were injected at a temperature of 106° F. No anesthetic was used. It is thought best to do the injecting at several sittings rather than to inject the whole quantity at once. There seems to be no limit to the possibility of paraffin injections in the alteration of physiognomy. The case of a patient is cited whose abnormal width of nose, owing to chronic rhinitis, was lessened and improved by making an artificial turbinated bone at several sittings by the injection each time of five minims of paraffin. The nasal septum has furnished an interesting field for practice. It has an endless variety of deformities. Deviation may affect bone or cartilage or both. In the majority of cases involvement of the bony septum is so moderate that it may be disregarded. In dealing with deflections of the nasal septum the utmost care should be taken to determine that the condition of the patient does not forbid surgical interference. Suprarenal extract has a great field in rhinology.

(To be continued.)

BOOK REVIEWS.

COMPEND OF GENERAL PATHOLOGY. By ALFRED EDWARD THAYER, M.D., Assistant Instructor in Gross Pathology, Cornell Medical College; Pathologist to the City Hospital; formerly Fellow in Pathology, Johns Hopkins University; Instructor in Anatomy, Yale Medical College, and Professor of Pathology and Bacteriology, West Virginia University. Containing 78 illustrations. Philadelphia, P. Bakiston's Son & Co., 1902.

FOR a short, concise but still complete treatise on pathology, Thayer's book will be found a great aid to students and others interested in this branch of medicine, since their practical needs have been especially considered and by the omission of controversial matters and references to authors and articles, the effort to give the subject simply has been steadily maintained. The book abounds in illustrations, chiefly borrowed from larger treatises. Bacteriology, too, has received free consideration and not the least attractive part is the chapter on autopsy technic and the preparation of sections. The syllabus upon which Chapter VI. is based is prepared by Prof. Ewing and deserves our hearty endorsement.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

NOTHNAGEL'S ENCYCLOPEDIA OF PRACTICAL MEDICINE. DIPHTHERIA, MEASLES, SCARLATINA, GERMAN MEASLES. By Drs. W. P. NORTHRUP and T. V. JÜRGENSEN. 8vo, 672 pages. W. B. Saunders & Co., Philadelphia and London.

THE FREETHINKERS' MANUAL. By Drs. BAUER and H. F. HERBERT. Demi 8vo, 384 pages. Radical Publishing Company, Philadelphia.

THE ARTIFICIAL FEEDING OF INFANTS. By Drs. C. F. JUDSON and J. C. GITTINGS. 8vo, 368 pages. Illustrated. J. B. Lippincott Company, Philadelphia.

DISEASES OF THE NOSE, PHARYNX AND EAR. By Dr. HENRY GRADLE. 8vo, 547 pages. Illustrated. Philadelphia and London.

THE NEUROSES OF THE GENITO-URINARY SYSTEM IN THE MALE. By Dr. R. ULTZMANN. Demi 8vo, 198 pages. F. A. Davis Company, Publishers.

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ORIGINAL ARTICLES.

THERAPEUTIC USES OF THE ORGANIC EXTRACTS.[1]

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As I firmly believe that the minute secretions of the internal ductless glands have much to do with the so-called functional diseases and can modify the course of acute and chronic disease, we not only can afford frequently to discuss the subject, but cannot afford to ignore it. I will therefore present what to me seems the proved therapeutic value of preparations of the ductless glands, and also suggest a few unproved therapeutic indications.

Before seeking for rational uses of the organic extracts, we must understand the physiology of the glands from which the extracts are made. In certain instances we now do understand such physiology more or less completely. The therapeutic uses of the other organic extracts are certainly more or less experimental, although many a truth has been learned empirically.

In discussions on organotherapy it always seems best first to take up the gland of which we know the most, namely, the *thyroid*. The physiological action of the thyroid is so well understood that we are hardly justified in describing it, but I may be pardoned if I state my understanding of it. The secretion from this gland by its vasodilating component regulates the peripheral circulation and hence the ratio of heat loss through the insensible perspiration, disturbance of which function showing, on the one hand, in the drying of the skin in undersecretion, or myxedema, and, on the other hand, in the profuse sweating of hypersecretion or Graves' thyroid disease. This vasodilating element also undoubtedly has something to do with regulating the circulation in the brain, and hypersecretion of this gland can also disturb the regularity of the cardiac contractions as seen so markedly in Graves' disease. A stimulating element in this secretion seems to irritate the brain, and if in excessive amount causes cerebral excitation, nervousness, and sleeplessness. Other parts of the thyroid secretion have to do with the regulation of the amount of mucin and connective tissue that shall be present or develop in the tissues, and if this secretion is diminished mucin appears in the skin and an abnormal amount of connective tissue develops especially in the skin and arterial system.

This gland is easily excited to hypersecretion temporarily by emotion, and normally by menstruation and pregnancy, this probably being the cause of the more or less persistent increased secretion and consequently more frequent hypertrophy in women than in men, as 80 per cent. of all cases of Graves' thyroid disease occur in women. It is interesting here to note that this gland normally seems to be a cause, if not the cause, of the dilated condition of the blood-vessels of the uterus periodically allowing the leakage of blood, or menstruation.

Also between the ages of forty and fifty this gland begins to atrophy, and atrophies excessively more frequently in women than in men, as shown by 80 per cent. of all cases of myxedema occurring in women.

In the normal individual a small dose of thyroid would be little noticed, at least not for a long period, but when large doses of either thyroid extract, thyroid gland, or iodothyrin are given for some time, there will be nausea and vertigo with increased cardiac action, a tendency to increased sweating and diuresis, with possibly faintness, cerebral irritation and tremor, and even glycosuria may be produced.

Undoubtedly there are numerous causes for the appearance of sugar in the urine, but unless the urine was carefully analyzed to show that thyroid feeding in a given case of diabetes was doing no harm, it should not be administered in any case in which there was sugar in the urine.

The marked value of thyroid feeding in cretinism, myxedema, and operative myxedema is a proved fact. In cretinism the dose should be small, and for physiological purposes I believe the dose of organic extracts should never be large, as the output of any one of these glands in twenty-four hours is certainly very small. The dried powder on the tongue of the patient, especially if the child be unruly, of about three centigrams three times a day, is a good starting dose. If the temperature rises, or the pulse grows rapid, or the child becomes nervous, irritable or sleepless, too large a dose is being given and it should be diminished. As soon as the child has improved, a small dose once or twice a week may be sufficient. The same method of dosage regulated according to the age, and modified by the appearance of these symptoms which are the symptoms of overfeeding perfectly similar to hypersecretion, is efficient for myxedema and for thyroidectomized patients. In cases of simple goiter I can see no special utility in the thryoid treatment, *per se*. If the patient is overweight, or fat and flabby, or there are any signs of myxedema, the treatment would undoubtedly be of value, but I would expect an iodide in some other form to do as much good as does the thyroid extract.

In exophthalmic goiter, which I have elsewhere named Graves' thyroid disease as being more nearly descriptive of the condition, thyroid extract has been tried. Believing as I do that Graves' disease is due to a hypersecretion, the thyroid extract would be contraindicated during the continuance of the active symptoms. Clinically I believe this to be well borne out, as all of the symptoms are increased by thyroid treatment during the activity of the disease. On the other hand we know that this disease tends to recovery, that this hypersecretion reduces to normal secretion sooner or later in most cases. Also it is barely possible that a hyperplastic gland may take on the next stage, as is so perfectly typical of other organs of the body, and perhaps show increased connective tissue formation; and, if not actually diminished in size, may have its glandular elements lessened so that we get a condition of undersecretion with the putting on of weight, muscular weakness, and mental sluggishness, in other words, possibly the first stage of myxedema, which goes no further. These cases will be benefited by thyroid extract.

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[1] Read at the Annual Meeting of the American Therapeutic Society, held in New York, May, 1902.

The rule I wish to suggest in regard to Graves' thyroid disease is: If there are cerebral excitement, palpitation, and progressive loss of weight, thyroid treatment is contraindicated; if the patient is sleepy, apathetic, with but little palpitation, has no headache, and is putting on weight, thyroid treatment will probably benefit the case.

There can be all of the symptoms of irritability, excitability, and hysterical manifestations of Graves' thyroid disease without exophthalmos and without apparent enlargement of the thyroid gland. These symptoms are true signs of increased thyroid secretion, and I believe that many cases of so-called hysteria are caused by temporary disturbance of the thyroid gland.

Probably almost every obese individual can be made to lose weight by the feeding of thyroid. Large doses will cause this loss rapidly, while small doses sooner or later will show their effect. This is especially true when the patient is over forty years of age, at which time he normally begins to put on weight and at which time his thyroid gland begins to diminish its secretion. If it is a family tendency to be stout the weight will return more or less rapidly after the cessation of the thyroid treatment. I believe that it is dangerous to use large doses or persistently medium doses of thyroid for the reduction of weight. Unpleasant symptoms can occur, as nausea, loss of appetite, irritable heart, cold hands and feet, weakening perspirations, muscular relaxation, syncope, and even convulsions. The loss of weight continues for a considerable time after the cessation of the treatment. If thyroid gland is used to reduce the weight, I believe that the dose should be small, not too often repeated, and then, if I am right in believing that the putting on of weight from forty to fifty years of age is in large measure due to the diminished secretion of the thyroid which we see displayed in excess in myxedema, then small, infrequent doses of thyroid gland would be of value, treating the case much as we would a cured case of myxedema, except that the dose of the thyroid required would be less.

Theoretically the feeding of this gland should increase the circulation in the skin and the normal perspiration and stimulate the throwing off of the epidermis. Hence it would be indicated in all conditions in which there was impaired nutrition of the skin with a dry epidermis, as typically occurs in the dry scaly eczemas, especially of old age, and in psoriasis. The dry eczemas of old age can be due to the diminished secretion of the thyroid, and I have found that the feeding of thyroid to patients when the skin was in the above condition has been of benefit.

As I have many times previously stated, I belive that any gland that can undersecrete or hypersecrete sufficiently to produce disease can also have its secretion sufficiently diminished or increased to give symptoms, though not enough to give the specific disease. Hence I believe many children, though not cretins, have diminished thyroid secretions as evinced by dull, heavy features, fat and flabby condition of the flesh, a tendency to mucous discharge from the nose, with persistent, recurrent cracks and fissures of the skin, either at the opening of the nares, at the corners of the mouth, back of the ears, or on other parts of the body. Such children I have found to improve under thyroid treatment. I have even seen large glands of the neck in these strumous children disappear under this treatment.

The feeding of thyroid gives a tendency to hemorrhages, which may be a bleeding from the nose, or a profuse and hastened menstruation. Hence this drug is of value in amenorrhea or scanty menstruation.

The thyroid function being so closely allied to to the menstrual function, it cannot but show disturbances at the cessation of the latter, *i.e.*, at the menopause. If the thyroid should rapidly diminish its secretion at this time, we have the condition of myxedema which occurs, as above stated, in 80 per cent. of all cases in women. If the thyroid at this time gradually diminishes its secretion, we probably have a most comfortable establishment of the menopause. If, on the other hand, as is fairly supposable, it does not diminish its secretion synchronously with the stoppage of the menstruation and therefore relatively hypersecretes, we have all of the disturbances of hot flashes, nervousness, palpitation, etc., which are so characteristic of many women during the climacteric, which condition I belive should not be treated with thyroid. If, on the other hand, there is a marked putting on of weight at this period, we probably have too rapid diminution of thyroid secretion and small doses of thyroid extract would be good treatment.

Thyroid has been recommended and used by some clinicians in carcinoma of the uterus as well as carcinoma elsewhere. Personally I have not seen it do any good in this condition.

As physiologically we have diminished secretion of the thyroid probably after forty and certainly after fifty years of age, is it not supposable that the increased blood-pressure at this age may be due to this loss of dilator stuff, and that the suparenal secretion with its blood-pressure raising power has now full sway, and as a consequence occur the diseases and conditions due to increased blood-pressure, such as endarteritis and all of its manifold consequences? Also, the diminished secretion of the thyroid can increase connective tissue formation and therefore sclerosis in various parts of the body occurs, as we see so exaggerated in myxedema. Also are not the drying and wrinkling of the skin in old age due to this same diminished secretion? I have repeatedly found in these conditions when there were signs and symptoms of arteriosclerosis and the head troubles and circulatory disturbances of high pressure, that small doses of thyroid were of benefit. Also, as it is proved that connective tissue is increased in thyroid atrophy, may not the thyroid gland be the best *alterative* and preventive of further connective-tissue formation in sclerosed organs, whether it be locomotor ataxia, small contracted kidney, cirrhosis of the liver, or endarteritis?

As a stimulant to the brain to be used in melancholia, or in definite cerebral disturbances, personally I have had but little experience. I have occasionally with it aroused a despondent individual, but have but small experience with it in the insanities. Perhaps it would be wise always to try thyroid treatment in the insanity of the menopause and in puerperal insanity, as there is probably a disturbance of the thyroid gland at this time, though whether a hypersecretion or undersecretion I do not know.

The therapeutics of the *pituitary* body should, perhaps, physiologically and clinically be considered in close conection with the thyroid. Disturbed function of the one gland seems to give rise to hypersecretion or disturbed function of the other gland, and many times at autopsies when one gland is known to be diseased the other is found also diseased. This is particularly true in the condition of acromegaly in which the pituitary body is always diseased, and I believe that the thyroid is also always found abnormal, and clinically the symptom-complex shows disturbances due not only to perverted pituitary secretion, but also to perverted thyroid secretion. The early symptoms in acromegaly are often complicated by symptoms due to hypersecretion of the thyroid. Later the increased action of the thyroid seems to tend, as it does in many glands and many organs of the body, to the formation of connective tissue, and the thyroid gland takes on the condition seen in myxedema, *i.e.*, connective tissue encroachment, closing up and diminishing the colloid containing acini. We then have not only the enlargement and thickening from the pituitary disturbance, but enlargement and thickening of the skin, or myxedematous appearances plus connective tissue formation everywhere, especially in the arterial walls.

While we can undoubtedly have tumor growths in the sella turcica and tumors of the pituitary body without symptoms of acromegaly, it is highly probable that some portion of this gland is producing normal secretion sufficient for the requirements of the body, and hence acromegaly does not develop. Certain it is that I have not found in literature a single authentic case of acromegaly in which a diseased pituitary body was not found on autopsy.

As I have elsewhere stated, I am convinced that giantism is caused by hypersecretion of the hypophysis, while acromegaly is due to a disturbed or diminished secretion of this gland. In fact I will go one step farther and state my belief that acromegaly is often in the beginning giantism, *i.e.*, homogeneous overgrowth without troublesome subjective symptoms or objective deformities, and that almost every patient with giantism if he lives long enough will develop deformities and symptoms of acromegaly.

While we are waiting for the physiological chemists to tell us just what the action of the pituitary is in the blood, we may note that Moraczewski,[1] in a recent article on "Metabolism in Acromegaly," says there is a tendency in this disease to retain in the body the tissue-building substances such as nitrogen, phosphorus, chlorides, and calcium. As to the action of retained phosphorus in the blood, we may note this, that in the first stage of acromegaly there is increased bone growth, while in the late stages there is distinct bone thinning. This is also true of slow phosphorus-poisoning. A small amount of phosphorus or phosphates may increase bone structure, while a large amount will cause thinning of the bones. Hence it is quite probable that in certain stages of acromegaly too much physiological phosphorus, perhaps elaborated by the pituitary, is retained in the system, and pathologically many cases of acromegaly have shown this unexpected thinning of the bones.

I know of no established therapeutic use of pituitary substance except in acromegaly.

I have not spoken of the possible vasodilating stuff in the pituitary, or of the possible effect of the pituitary on the heart, because physiologists are not quite agreed as to just what this subtance will do to the circulation. Whether or not in any disease or condition pituitary and thyroid can be used interchangeably is still an undecided question.

I have reported elsewhere, and Dr. Kuh[2] of Chicago has recently reported the same experience, that the feeding of pituitary tablets to patients with acromegaly who are suffering from headache of the intense variety and who are muscularly weak, causes the headache either to cease or to become ameliorated, and the return of muscular ability. I have now an acromegalic case which I have had under observation for about three years. Her headaches will almost cease and her muscular ability return under pituitary feeding. She can then go without this substance for a number of weeks, sometimes for two or three months, but will always return to the clinic asking for more of her headache tablets, and always with the same good results. When this treatment was first started she was suffering constant, excruciating and continuous headache and was muscularly unable to do her work or hardly to be about.

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[1] Zeitschrift für klin Med., Band 43, Hefte 3-4.

[2] Jour. Amer. Med. Assoc., Feb. 1, 1902.

At this period of acromegaly, as shown by autopsies, we must believe that the hypophysis has ceased to furnish its secretion, but why the pituitary feeding should relieve this headache, which is evidently a toxic headache, although seven or eight years ago I described it as due to cerebral pressure from the enlarged pituitary tumor, I cannot tell. I have found no other treatment, chloral, bromides and other anodynes not excepted, that will relieve this headache as does pituitary. The dose is two or three three-grain tablets a day. We may find that pituitary is logical treatment for dwarfs.

The exact physiological behavior of the *thymus* gland in the organism is also not positively decided. Certain it is that it is the richest organ in the body in nuclein and therefore in physiological phosphorus. This gland, reaching the height of its activity so soon after birth and being evidently of primary importance during the rapid growth of the child, atrophying and disappearing at the time of puberty, shows inductively that it must have to do with the growth of the body. The part of the body which most evidently grows at this time is the osseous portion, hence theoretically it would seem that this gland has something to do with the formation of normal bone salts. Whether this gland is antagonistic to or its secretion is in some lines analogous to that of the thyroid, we are not able to decide, but in cases of Graves' thyroid disease, in which feeding of thyroid would aggravate all of the symptoms, I have had good success in giving the thymus gland, and this in repeated cases and repeatedly in the same case, and am empirically convinced that the thymus treatment is often of value in hypersecretion of the thyroid.

In treating pulmonary tuberculosis, looking for some drug or preparation which would aid in the normal physiological, or pathological if you will, cure of tuberculous deposit and infiltration, *i.e.*, the local deposits of lime-salts and phosphates, shutting off and isolating the tuberculous process from the rest of the lung, I hit upon this gland as furnishing normally just the kind of salts that is used in this process, and for several years have given thymus gland to all of my tuberculous cases, and am prepared to say that, combined with the best hygienic, hydrotherapeutic, and fresh-air surroundings that I can give my patients, thymus gland treatment will always make the condition better. The patients put on weight and curable cases get well faster under thymus than without it. This is possibly only a revival of the hypophosphite treatment, but I believe that it is physiologically more effective.

The doses that I use are the small doses that I always recommend of all organic extracts, namely, two or three three-grain tablets a day of Armour's preparation.

The *suprarenal* glands have been so much discussed in literature and in societies that it is almost unnecessary to mention them here. Abel's epinephrin and Takamine's adrenalin have placed clinicians in a position positively to determine the value of the wonderful blood-pressure raising properties of these glands. The action on local mucous membranes needs no discussion. The inability of suprarenal or any preparation of it to raise the blood-pressure or to stimulate the heart after it is swallowed into the stomach is a proved fact. The power of suprarenal substance, or adrenalin, or epinephrin to raise the blood-presure and stimulate the heart when sprayed on mucous membranes, chewed up or allowed to absorb from the mouth is also a proved fact, thanks, largely, to Dr. Bates, of New York.

Whether or not adrenalin solution is the purest product that can be obtained of the blood-pressure raising substance of suprarenal, it certainly is the product that we can most readily obtain in the shops to-day. Hence no case of sudden cardiac failure or shock, whether from injury, from operation, from intensity of an infection, or from crisis in disease, should be allowed to carry off a patient without the use of adrenalin together with whatever other treatment is advisable. The dose that I use of the one-to-one-thousand solution of adrenalin is five to ten drops on the tongue every fifteen or thirty minutes for a few times, and then every three hours as needed.

So much for the vasoconstricting and cardiac stimulating properties of suprarenal, but there are undoubtedly other properties of this substance representing other functions of this gland which we do not at all understand.

I have recently had a very interesting case of diabetes in a young boy ten years old, in whom I could demonstrate no pancreatic disease and could put my finger on no one organ that was diseased. This patient's urine was examined very carefully, for a number of months, and we found the feeding of thyroid to this boy would cause an increase in the output of glucose, put the diacetic acid, acetone, and ammonia up to a dangerous height and cause symptoms of pending toxic acidemia. Arsenic also, which I believe to be a stimulant to the thyroid gland, would increase the sugar. Various treatments were tried. Finally suprarenal tablets were fed him, under which treatment the sugar was diminished more than by any other treatment, the diacetic acid would almost disappear, and the acetone and ammonia diminish. This treatment was persisted in and was quite successful in keeping him in apparent health. Sometimes adrenalin solution was substituted for the suprarenal, but it did not seem to do so well. The suprarenal was given him by the stomach on the theory that it was not the blood-pressure raising substance that was of benefit, but probably the other parts of the gland. This patient remaining about the same for a year under the suprarenal treatment, there being no lessening in the amount of sugar passed in the urine, it was deemed best to stop the suprarenal for a while and watch the urine to see where we were at. *Post hoc* or *propter hoc,* in two weeks the patient developed diabetic coma and died in a few days. This case is of interest in conjunction with the recent experiments that have shown that the injection of adrenalin solution into the abdominal cavities of dogs has caused marked glycosuria. It is also interesting to note that the feeding of thyroid in this case increased the sugar output, and it is well known that Graves' thyroid disease can cause a glycosuria.

I believe that adrenalin should certainly be used in all conditions of low vasomotor tension, typically, of course, in Addison's disease, and in the anemias. It should undoubtedly be used with care after fifty years of age, as I believe the suprarenal secretion is then in the ascendant and overpowering the diminishing thyroid secretion. The suprarenal preparations are recommended for various conditions, and certain it is that solutions of this gland can be used with success locally wherever there is mucous membrane congestion, inflammation or capillary bleeding. In shock from anesthesia and from narcotic poisons, especially from morphine, where it is possible that the suprarenal glands are paralyzed or their secretion interfered with, and hence the dangerous dilatation of the abdominal blood-vessels, in all of these conditions there is certainly an indication for the use of adrenalin.

The gland which seems to be causing the most discussion in the medical journals, but one the physiology of the internal secretion of which we know little, is the *ovary.* The advent of puberty with all of its distinctive phenomena showing the development of the ovaries and the maturity of their function, and again the disturbances of the menopause when its function ceases, and also the operative climacteric caused by the removal of the ovaries, all tend to show that there is an important internal secretion of this gland.

It is now so well recognized that the functions of the ovaries should not be rudely or unnecessarily removed, that surgeons are endeavoring to ablate only the diseased portion of these glands, or, if the tubes must be removed, to transplant the ovaries into the uterine walls, and with apparently large measure of success. Suffice it to say that we as therapists should be greatly pleased at the retention of this physiological secretion which seems to be necessary to the health of the individual. If it is necessary to remove both ovaries, theoretically ovarian substances should be fed until such time as the systemic disturbances have abated. However, the feeding of ovarian substance in these conditions does not always give the desired amelioration of the symptoms, perhaps because most of the symptoms are due to a relative hypersecretion of the thyroid.

The ovaries are being removed for carcinoma of the breasts, but with what measure of success is not yet positively in evidence. Ovarian substance has been given to chlorotic and anemic girls with amenorrhea, but I am inclined to think that thyroid substance in small doses is of more benefit. In a word, I believe the therapeutic value of ovarian substance or extract is still experimental.

Of its analogue, the *testicular* or orchitic extract, there is very little therapeutically to say. It is a prepartion rich in nuclein and phosphorus, and when a stimulant of this description is needed by the system it is undoubtedly good treatment. Any special specific action of testicular substance other than that of nuclein stimulation is still unproved and mythical. That this gland has some important internal secretion cannot be doubted by any one who has watched the profound intoxication of the body when the infection of mumps strikes the testicles. The high fever of 105 or 106° F, with very often a slow, weak pulse, or a rapid, weak pulse, with irritability, nervousness, restlessness, very different from the same infection attacking the parotid gland, shows that some secretion has produced a profound intoxication. In just what relation the parotid stands to the testicles, or what, physiologically, the infection of mumps does, stimulating or retarding the secretion, we do not know.

In following out the suggestion of Dr. Schober of Philadelphia and Dr. Mallett of New York, I have tried *parotid* gland for the pains of dysmenorrhea and often with success. In a case of epilepsy that had been under treatment for years with bromides, with more frequent attacks at the menstrual periods which were always accompanied by dysmenorrheal pain, I had found thyroid tablets to be as beneficial if not more so than bromides. The thyroid treatment, however, was objected to on account of producing profuse and frequent menstruation, and I substituted parotid gland treatment, giving Armour's tablets two or three a day, and found the dysmenorrhea was not only better, but to my astonishment the epileptic attacks ceased and have not occurred for over a year, while the petit mal attacks, which were almost daily, have not been noticed in six months. Of course I can give no reason for this possibly accidental or coincidental result, but the patient has received no other treatment for a year, and I shall most certainly give the parotid a further trial in similar cases.

Whether or not we can depend upon *mammary* extract as an aid in the debility of young women or to stop uterine hemorrhage and menstrual backache, or can diminish the size of muscle tumors or fibroids of the uterus, is still, I believe, unproved. In some cases I have thought that I could attribute some good to such treatment, but I have not gotten the brilliant results obtained by some clinicians who have employed this extract. Until careful chemical investigations may reveal some isolated principle its therapeutic efficiency will remain unsatisfactory.

TENDON TRANSPLANTATION; ITS HISTORY, INDICATIONS AND TECHNIC.[1]

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THE operation of tendon transplantation, while rapidly coming into repute, is still little known to the general practitioner. Text-books allude to this subject to a very limited extent only, and there has never yet appeared a complete monograph upon this interesting form of surgical intervention. In preparing this paper I have been compelled to do a considerable amount of original work, and I must therefore ask your indulgence for any omissions or errors which are prone to occur under such circumstances. Possibly it was the uncertainty, the absence of definite knowledge, the lack of detail in regard to this subject in the ordinary channels of information that have induced me to present this subject to your honorable body; and while our efforts always fall far below our ideals, I trust it will not be presumptuous in me to say—bearing in mind the scanty character of the general information upon this subject—that my efforts in this direction have not been entirely barren of results.

After a few remarks of a general character, I shall discuss first of all the history and evolution of tendon transplantation, for in no other way can we derive so distinct a conception of this subject; next, I wish to sketch briefly the symptomatology and diagnosis of the conditions for which tendon grafting is performed; and, finally, must be considered the operation itself, its indications and technic, its results, immediate and remote, together with the possible future of this phase of surgical intervention.

The general consideration of a subject like tendon transplantation often offers as much of interest as a discussion of its technicalities. It is not claimed that this form of intervention represents a revolutionary advance in surgery; it is enough to state that tendon-grafting has proved itself an operation of general utility, of a wide range of applicability. It is not so much as an independent system that it claims attention, but rather as a synergist to other operations—to tenotomy, to tendon-suture, to the lengthening and shortening of tendons—that it merits our consideration. Tendon transplantation comes into vogue at a most opportune time. First, it is a logical sequence of the other forms of tendon surgery already mentioned. Second, it is coeval with various other methods of treatment of paralysis and its results by surgical and mechanical measures. It is surely something more than a coincidence that just as tendon-grafting is coming into vogue as a routine measure in correcting the deformities resulting from infantile spinal paralysis, the hemiplegic paralysis of adults is being treated without loss of time by the application of graduated mechanical devices, in concert with voluntary efforts at reeducation of muscles still under control of the will. Clearly the time is ripe for tendon transplantation. But despite this timeliness we are forced to ask, "Why did such a rational procedure, so easy of execution, wait so long for its fruition? Why was it not brought to light years, even centuries, ago?"

While the pathologists of a past century took delight in making all sorts of animal grafts, we are assured over and over again by writers on tendon-grafting that this operation does not go back beyond the year 1881. If this assertion were actually true, then tendon transplantation differs from almost all other surgical innovations, for as a rule surgical advances have been foreshadowed long before their actual appearance—have been discovered, forgotten and rediscovered. But we are assured on all sides that this operation came into existence in 1881, at the hands of Professor Nicoladoni, now of the University of Graz, but at that time associated with the clinic of the recently deceased Professor Albert of Vienna.

We may here anticipate a little in regard to our sketch of the history and evolution of tendon-grafting by the statement that no less than six men since 1881 appear to have proposed this operation as a new and unheard-of phase of surgical intervention. Some of these authors express surprise that so simple a procedure had never before been described, but put in a claim of priority on account of failure to discover anything of the sort.

On the occasion of preparing this paper I determined to ascertain the complete history of tendon transplantation. There appears to be no doubt whatever that this operation was never done for paralytic clubfoot before 1881, and that the credit for priority for this indication justly belongs to Nicoladoni. On the other hand, the operation of tendon-grafting for severed tendons which could not be sutured goes back over a century. Malgaigni, in his lectures on Orthopedic Surgery published in 1862, and Velpeau in his Operative Surgery, edition of 1839, alike recommend that severed tendons be grafted upon adjacent tendons which are intact. Nevertheless, since the introduction of grafting in infantile paralysis, this teaching has apparently been forgotten, and it is customary to speak of the operation as an innovation of comparatively recent date.

Probably the first man who ever grafted a tendon for any cause was Missa. The case which was reported in the *Gazette Salutaire*, 1770, No. 21, was as follows: The extensor of the middle finger having been severed, with resulting inability to suture it, Missa implanted the central end into the tendon of the index finger, while the peripheral end was similarly grafted upon the tendon of the ring finger. Thus two muscles were able to exert their functions upon the wounded finger.

Velpeau, in his encyclopedic work on surgery, preserves this case from oblivion. He does not appear to have done any grafting himself, but a contemporary named Champion informed him that he had made use of Missa's operation in connection with the amputation of fingers. Upon the occasion of removing the little finger and its metacarpal bone, Champion grafted the tendon to the tendon of the ring finger.

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[1] Read by invitation before the Surgical Section of the Buffalo Academy of Medicine.

In a discussion upon tendon-grafting before the Paris Surgical Society in 1874, Polaillon, doubtless unaware of the cases of Missa and Champion, awarded the credit of priority to Denonvilliers, a contemporary of Velpeau. A careful survey of the work on surgery written by Denonvilliers, Berard and others, reveals no mention of tendon-grafting. In the same discussion, Polaillon announced that he grafted a tendon in 1873. The patient had ruptured the three middle extensor tendons of one hand. Polaillon cut down three days later and found the central ends retracted beyond the possibility of suture. He merely attached the peripheral ends to the tendons of the thumb and little finger. The patient was able to extend the finger, but adhesions formed between the cicatrix and the tendons.

In 1874 Tillaux reported a case of tendon-grafting before the Paris Surgical Society. He operated two months after the division of the tendons of the little and ring fingers, the external wound having healed. Upon cutting down the usual retraction of the central ends was found. The extensor tendon of the medius was then incised longitudinally and the peripheral ends of the two severed tendons were grafted therein, after freshening their edges. The tendons were fastened by a metallic suture. The cutaneous wound was then closed and the hand placed in a retentive apparatus. Two and a half months later the fingers could be flexed and extended. The only drawback to a perfect result was the adhesion of the operation scar to the tendons.

One year later (1875) both Duplay and Tillaux reported cases of tendon-grafting before the Paris Surgical Society. Duplay's patient was seen for the first time six weeks after the division of the extensor tendons of the thumb, which remained in the position of flexion. As suture was out of the question, the extensor carpi radialis was incised, and the peripheral end of the tendon of the extensor longus pollicis was affixed therein by a metallic suture. The result was almost perfect. If the thumb were folded into the palm it could be voluntarily extended. Tillaux, in discussion, stated that he had performed the same operation with a good result a few days before.

After reading these cases we receive the impression that probably all surgeons at the time of the publication of Velpeau's work must have been aware of the practicability of tendon-grafting. Valentine Mott, who translated and edited Velpeau's work, was necessarily aware of this surgical resource and, through him, the American surgeons of his day. In the short discussions before the Paris Surgical Society, ordinary tendon-suture was spoken of as a relatively common procedure; while grafting or suture by anastomosis, as it was called, was stated to be an exceedingly rare event. This leads me to state that the term "grafting" is of recent origin, for in the old cases which I have cited, the operation is called tendon-anastomosis, or suture by anastomosis.

It appears reasonable to suppose that tendon transplantation has been done in the past more generally than is believed to have been the case. Doubtless a study of the entire literature of tendon-suture would reveal the existence of cases similar to those just described. It seems probable that Nicoladoni or his associates may have been aware of the existence of successful cases of this sort, although this author remains absolutely silent upon this point. It is certainly not a very wide leap from grafting for the functional impotence induced by old traumatic separation of a muscle and the same operation done for paralysis of central origin.

In April, 1881, Nicoladoni showed before the Surgical Section at the annual meeting of the Society of German Naturalists and Physicians a sixteen-year-old boy whom he had recently operated upon for paralytic talipes calcaneus. As all the calf muscles were paralyzed, the tendons of the two peroneal muscles were divided and the central ends were implanted into a longitudinal split in the tendo Achillis. The author was able to show the members of the Society that the contraction of the peroneal muscles produced plantar flexion of the foot, while the patient's gait was considerably improved.

During the following year Nicoladoni reported this case in great detail. As a brief review of the particulars of this case of grafting for paralysis will bring out a series of practical points, I shall enumerate its more salient features: The patient was able to execute dorsal flexion, while plantar flexion was impossible. He could not flex the great toe; the second toe moved but lightly in the attempt to flex it, while the three outside toes could be readily flexed. In the effort to flex his toes the foot was placed in dorsal flexion while the periphery of the foot was arched toward the heel, and during these movements the peronei were felt to contract. Faradic examination showed a prompt reaction on the part of the tibialis anticus, extensor hallucis, extensor communis digitorum and both peronei. No reaction in any of the calf muscles was obtained and only a very weak response from the muscles of the sole of the foot. In view of the complete absence of plantar flexion it occurred to Nicoladoni to implant the tendons of the healthy peronei into the tendo Achillis. An incision was made over the peronei tendons, which were cut through while some of the muscular origin was detached from the fibula. A second incision at right angles to the first exposed the tendo Achillis. On carrying the dissection upward the belly of the gastrocnemius was found to be completely transformed into fat. An oblique incision was made lengthwise in the tendo Achillis, so as to provide a sort of mortise for the reception of the tendons of the peronei, thereby securing a large adhesion surface. Sutures were applied and as a precautionary measure, the bellies of the peronei were sutured to the integument to prevent retraction which would tear apart the tendon-suture.

Very soon after performing this operation Nicoladoni was appointed to the chair of surgery at the University of Innsbruck, so that the case passed from his care. During the exercise of a long and active career it does not appear that this surgeon ever took up this operation a second time. While the immediate results in the first case were very promising, it is stated by Maydl that the anastomosis finally separated and all the benefits of the operation were forfeited.

The Nicoladoni operation, as it was called, was performed in four or five other cases by Von Hacker, Maydl and some of the other surgeons attached to Albert's clinic, invariably for pes calcaneus, but the ultimate results appear to have been disappointing. No attempt was made to extend the operation to other forms of paralytic deformities, and it is apparent that as early as 1886, the operation of tendon-grafting had been definitely abandoned by the German and Austrian surgeons. So little activity resulted from these operations that a few years later, when this mode of intervention was rediscovered independently by a number of surgeons, some time elapsed before Nicoladoni's brilliant efforts in this direction were duly recognized.

The first American surgeons to report cases of tendon transplantation were Milliken and Parrish of New York. Announcing (as did Nicoladoni) that they had introduced a new and original principle into surgery, Parrish explains how he was led to perform his operation. First, he remarked upon the great frequency of talipes valgus following infantile paralysis. He then calls attention to the fact that in the vast majority of these cases the tibialis anticus alone is paralyzed, while the extensor longus pollicis retains its strength.

After experimenting upon the cadaver, Parrish became convinced that his principle was both correct and practicable. His first operation was performed in May, 1892. The patient was about four years old and had been paralyzed for nearly three years. Of the various muscles originally involved, all had regained their functions save the tibialis anticus and posticus, paralysis of which had caused talipes valgus. The foot could be replaced in its natural position and the extensor longus pollicis was moderately strong.

This author made an incision over the tendons of the anterior tibial and extensor longus pollicis. The tendons were found and isolated, the sheaths cut away, the foot placed in inversion and extension to shorten the tendon of the tibialis anticus and pull down that of the extensor longus pollicis. The opposing tendinous surfaces were then freshened and coapted for an inch or more with catgut sutures. The foot was immobilized for a month in a plaster-of-Paris dressing. The result in this case is not clearly outlined, but the inference is that it was not brilliant.

Parrish speaks as if he had operated on other cases of the same character, although he gives no details. His procedure was a distinct advance over that of Nicoladoni in that he did not sacrifice anything; he made one muscle do the work of another without abandoning its own function. In conclusion he expresses the belief that transplantation will find its principal use in talipes valgus with a possibility of extension to the treatment of pes calcaneus. It does not appear that this American surgeon continued his brilliant work on this subject. His efforts, like those of Nicoladoni, appear to have lacked immediate results.

The next independent report of value of tendon transplantation in infantile paralysis was written by Drobnik, a Polish surgeon. While this operation was a mere episode in the practice of his predecessors—something to be taken up only to be dropped again—Drobnik continued to develop the method until he was able to report sixteen cases. While those before him—with the possible exception of Von Hacker—had never reported a truly successful ultimate result, Drobnik obtained a number which were extremely brilliant. While his predecessors reported little or no attempt to extend the operation of transplantation to affections other than the different forms of paralytic equinovarus, Drobnik made use of the method in paralysis of the upper extremity. He states that in 1892, he became impressed with the inutility of the treatment of paralytic clubfoot in comparison with the good results obtained in the ordinary congenital variety. His first patient was a case of marked equinovarus paralyticus upon which every resource of treatment had been exhausted. She walked upon the outer edge of the dorsum of the foot. The only muscle paralyzed appeared to be the extensor communis digitorum. The peronei were simply atrophic from the stretching to which they were being subjected, and gave a weak reaction. The child wore a brace which was very troublesome and the parents decided to have a tenotomy of the tendo Achillis performed. Two weeks later Drobnik operated again, divided the tendon of the extensor hallucis and implanted the central end into the tendon of the paralyzed extensor communis digitorum, the position of the foot having been corrected. The result in this case was excellent, the patient being enabled finally to use skates without discomfort.

His second case was a duplicate of that operated on by Parrish and treated by the same method of grafting, save that he divided the tendon of the extensor longus pollicis outright. Drubnik's third patient had a pes calcaneus. The tendo Achillis was freshened on either side and a segment from both the flexor longus digitorum and the peronei was sutured thereto.

The fifth case is of special interest, as it is the first recorded example of grafting for infantile paralysis of the upper extremity. The only muscles which retained their functions were the two extensor carpi radiales. The extensor longus was implanted outright upon the extensor communis digitorum, while one half of the short extensor was sutured to the extensor longus pollicis. The patient regained through this operation considerable use of the fingers.

Numerous other cases reported by Drobnik are of interest but no new principles are introduced.

Another writer who advocated tendon transplantation in paralytic equinovarus was Phocas, who operated upon a single case in 1893. His patient had paralysis of the tibialis anticus and posticus with resulting pes valgus. The calf muscles were weak. He divided the tibialis anticus, sutured the peripheral end to the central stump of the extensor longus pollicis, while the central end of the tibialis anticus was sutured to the peripheral end of the extensor longus pollicis.

Still another operator was Winklemann, who operated in 1894 upon a case of peroneal paralysis, splitting the tendo Achillis into two segments, one of which he grafted upon the cut peripheral end of the peroneal tendons.

The next surgeon chronologically to take up tendon transplantation for infantile paralysis was Goldthwait of Boston, about 1894. Like his immediate predecessors, Goldthwait started with the impression that the method was original. He took the interest to look into the literature in connection with his admirable work on this subject and learned of the case of Nicoladoni and "one or two other cases abroad with a few in America." The latter probably represent the experience of Parrish. In his first case, one of pes calcaneo-valgus, he grafted the peroneus longus upon the tendo Achillis and the peroneus brevis on the flexor longus pollicis. This and three other cases reported at the time illustrate no advances in principle or technic over those of the other operators, but I shall have occasion to refer to Goldthwait's brilliant work later, in connection with the introduction of direct muscle transplantation into these operations.

Next comes the work of Franke, which marks a new epoch in tendon transplantation. This author was the first to bring about an innovation, namely, the application of this method to infantile spastic paralysis of cerebral origin. The credit for this is often mentioned as belonging to Eulenburg, but it appears that Franke preceded him by some two years. A second innovation due to this surgeon is a composite procedure for the treatment of radial paralysis in which tendon transplantation represents an important feature.

Franke's first case of cerebral paralysis occurred in a six-year-old boy who suffered at the age of one year from acute encephalitis. As a result he developed athetosis and paralysis of the right leg and arm. The foot was in the position of equinovarus. The entire muscular power of the lower extremity was weak, the peronei were paralyzed and the extensors of the toes were paretic. As the tibialis anticus was strong, the peripheral portion of the tendon of the extensor longus digitorum was grafted into it. The improvement obtained was very satisfactory. The gait was more certain and the patient could walk without stumbling. While this case was unlike those previously reported in being of cerebral instead of spinal origin, it does not appear to have exhibited any element of spastic paralysis.

Franke afterward reported a case of eminently spastic paralysis as follows: The patient was a boy aged nine years who had had an equinovarus since infancy. Examination showed that the flexors, though intact, were the seat of violent contractions, while the extensors and peronei were in a state of paresis. The boy exhibited athetoid movements of the hand of the same side. In this case he first lengthened the tendo Achillis to overcome the equinus. The foot was then put in a plaster-of-Paris dressing, but when this was removed some spasm of the toes was still present. The next step was to tenotomize the flexor longus digitorum, but the contractions still persisted. This phenomenon could only be explained by the presence of an anastomosis between the tendons of the flexor longus pollicis and flexor longus digitorum, such as occasionally occurs. The flexor longus pollicis was then tenotomized and all spasms practically ceased. Transplantation of the tendo Achillis upon the peronei proved to be a useful step in the treatment of the case, but some correction became necessary, so the tendons of the peronei were cut, the foot corrected and again placed in plaster of Paris. As a result of all these successive interventions, the foot was restored to normal position and the gait was much improved. Some very slight spasm of the toes remained, but not sufficient to demand further surgical attention.

Credit for suggesting and carrying out tendon transplantation in infantile cerebral spastic paralysis must also be given to Eulenburg, the distinguished neurologist of Berlin, who appears to have been the first in his special department to foresee the great possibilities of this form of intervention in paralysis. In fact, Eulenburg goes even further in his statements than the other surgeons, for he sees no limit to the usefulness of this operation in paralysis, predicting that it will soon be employed in hemiplegia and peripheral palsies of all kinds. Eulenburg's case was an example of cerebral diplegia or so-called Little's disease. The peculiar muscular contractions made walking an impossibility. The child was four years old and the precise deformity was equinovarus of a spastic nature. The tendo Achillis was partly transplanted into the peroneal tendons, and the foot was then overcorrected after tenotomy of the remaining half of the tendo Achillis. The result in this case was surprisingly good.

I shall next proceed to discuss Franke's improved method of procedure in arm paralysis. As may be recalled, Drobnik was the first to operate for this condition, the case consisting of partial radial paralysis. Franke's case was one of total radial paralysis, a much more serious affection. While Drobnik was able to make use of two sound extensor muscles for grafting, Franke could employ but a single muscle for this purpose.

In the treatment of radial paralysis we must restore to the hand its power of extension. This could not be effected by mere transplantation of tendons. Franke's operation was performed as follows: The patient, who was eight years of age, lost almost the entire use of her arm when in the second year of her life, following a febrile attack. The arm was frail and there was marked atrophy, the picture being typical of total radial paralysis. The first step consisted in the shortening of the tendon of the extensor carpi radialis longus. The sheaths of the tendons of both the extensor and flexor carpi ulnaris were opened. As this flexor possessed some power, its tendon was divided and the central end implanted into the tendon of the extensor communis digitorum at the point where the latter becomes fan-shaped. The flexor tendon was made to occupy the groove of the extensor; in this case, therefore, a flexor muscle was made to do the work of an antagonist. The transplanted muscle was made tense and the dressing applied with the hand placed in a position of marked extension. After the wound had healed it was found that the child could extend as well as flex her fingers.

The next step consisted of an arthrodesis of the shoulder-joint to prevent the rotation of the arm inward. In analyzing the result it appears that the flexor carpi ulnaris extends both the fingers and the hand. The fingers can be extended beyond the horizontal position and the child can also extend the hand when it has been flexed beneath the horizontal position. With such a result Franke felt confident that radial paralysis would be no longer an incurable affection.

In 1895 Krynski reported a case of grafting for traumatic separation of the flexor tendon of the middle finger. As the central end could not be reached, he implanted the peripheral portion into the tendon of the neighboring index finger. This case is regarded as a natural outgrowth of the Nicoladoni operation, yet as we have abundantly observed, it is merely the same procedure advised under such circumstances by Velpeau and Malgaigne.

In 1897 Kirsch reported a similar case in which he buttonholed the peripheral ends of the cut extensors of the thumb into the extensor carpi radialis longior. Curiously enough this author appears to have been quite unaware of the new school of tendon transplantation, but he was conversant with some of the older cases reported before Nicoladoni's time, and it is through the clue thus furnished that I have been aided in locating those cases operated upon in past years.

There still remains for discussion an additional stage in the development of tendon transference. I refer to the direct transplantation of muscle tissue. This, as far as I know, was first done by Goldthwait in 1895. Noticing that the sartorius generally escapes paralysis in those cases of anterior poliomyelitis which involve the thigh, he conceived the idea of making this muscle do the work of the paralyzed quadriceps. All previous transplantation had been done with muscles having well-formed tendons. The lower extremity of the sartorius muscle was attached to the quadriceps extensor just above the patella. He has done the operation a number of times and has secured some excellent results, the flinging gait and rotation having been obviated.

So far as known there have been no further advances along these lines and during the past few years the interest in the transplantation of tendons has been centered in the application of the principles already developed. Complete statistics are lacking, because the operation has now become so well known, that many have ceased to report further cases. I should think that 200 would be a very conservative estimate of the number of operations already performed and this number certainly falls far below the actual material at our disposal. In the vast majority of cases transplantation has been performed for the various forms of paralytic equinovarus, valgus and calcaneus, the proportion being about 8:3:1.

Simple as is the operation of tendon anastomosis, it does not appear to have been performed until all the older methods of treatment have been exhausted, and therefore, in the more desperate cases in which from extreme chronicity numerous secondary pathological changes have occurred which require special treatment. It must be remembered that opportunities for ideal grafting are not common, because the necessary proximity of sound and paralyzed muscles may not be forthcoming; but, as we have seen, it is not indispensable that the two muscles be synergists, for one muscle may be made to do the work of an antagonist or an indifferent muscle. An extensor tendon of the finger may, for example, be passed through the interosseus space and transplanted into a flexor tendon. Or the peroneal tendons may be passed beneath the tendo Achillis and grafted upon some of the flexors of the foot. A graft may fail to secure the object intended, but the newly-made tendon may still serve as a support for the joint so that operation is not without benefit. Besides, if the action of the newly-grafted muscle be too feeble, or if the graft be a false one, i.e., if the diagnosis has not been correctly made, so that the wrong tendons are anastomosed, there is still a chance to make a second graft. If the voluntary power in a grafted muscle be not apparent, benefit may still accrue from the involuntary contraction of these muscles when the foot touches the ground, which gives a firmness to the gait.

Another benefit from the operation of grafting lies in the relief of tension of certain muscles which has been due to a distorted and faulty position of the foot. The weakened and atrophic condition of the non-paralyzed muscles may be due to this circumstance, no less than to disuse and and reflex atrophic influence.

Various authors have made additions to the terminology of grafting which have come into common use. Thus, Drobnik divided the operation into two types, transfer of function and sharing or partition of function. In the first class a previously healthy muscle is sacrificed to replace a paralyzed one; as, for example, when we cut the tendon of the peroneal muscles and attach the upper ends to the lower end of the tendo Achillis. This operation can hardly be called a conservative procedure, for there is loss as well as gain in function. The other method consists essentially in the partial separation of a sliver from one tendon which is later made to anastomose with the tendon of a paralyzed muscle. In this form one of the original muscles is made to share its function with a weakened muscle so that the procedure is eminently conservative.

Vulpius introduced the terms active and passive into grafting. If the tendon of a paralyzed muscle be joined to the tendon of a sound muscle, the graft is called a passive one. If a sound tendon be split and a portion grafted upon a paralyzed tendon, the graft is termed an active one. Bilateral transplantation is called active-passive. Both methods give good results.

Since in the vast majority of cases the operation of transplantation has been performed for paralytic equinovarus, due to infantile anterior poliomyelitis, a few words upon this disease may not be out of place. Infantile paralysis does not affect the muscles indiscriminately as a rule, but different groups are attacked, thus causing different types of deformities. In two or three months after an attack of anterior poliomyelitis, the paralysis has assumed a definite status. Within a few weeks after the onset of the disease some of the muscles have begun to regain their functions. In the leg this restoration is usually central at first and extends to the periphery. When recovery has gone as far as it can, certain muscles of the leg or thigh will remain partially or completely paralyzed and now the foot begins to assume some form of distortion depending upon the paralyzed muscles. The same may be said to be true of the arm. There may be an arrest of development in the paralyzed limb and it becomes shorter than the other. The lack of development is greater in the foot than in the leg, and greater in the leg than in the thigh. The muscles which are not completely atrophied may exhibit all degrees of weakness and shrinking, the causes being multiple. In addition to the natural atrophy from disuse and the trophic disturbances incidental to it, the stretching of certain muscles arising from extreme distortion of the foot must not be lost sight of as a factor.

Finally, in long-standing cases, changes develop in other portions of the foot and ankle—disturbances in the original anatomical relations of the tarsal bones, contraction of the plantar fascia and numerous other pathological conditions.

The subject of diagnosis is of vital importance in connection with tendon transplantation; in fact, it is not justifiable to operate unless we are certain of our diagnosis, and it is essential to have in mind a clear and intelligent understanding in regard to the class of cases and conditions under which this procedure may prove successful; for the leading idea of this operation is to localize the seat of muscular force fittingly by guiding it over functionally important muscles. But this is beset with difficulty. While an adult patient can render great service by exerting voluntary contractions of the muscles, so that an idea of their relative power can be obtained, the majority of cases in which tendon transplantation is permissible occur in children, who are often too young to assist us in this respect. When the child is of the proper age we may ask it to flex, extend, abduct and rotate, and to walk up and down. We can tell which of the muscular bellies contract, and this in connection with the movements produced goes far toward making a diagnosis. But in a very young child, or in any case in which there is the least doubt, I invariably make use of electrical localization. This delicate procedure is first applied to the localization of the healthy muscles. The stimulation of the electrical current will cause healthy muscles to contract and produce various involuntary movements of the part. If we are forced to use this method upon young children, we must exercise the greatest patience. It is advisable to make a number of examinations if necessary in order to ascertain the exact condition, which we realize is of paramount importance. Having learned which muscles are unaffected, we seek to determine the amount of power left in the others. Muscles absolutely paralyzed will give the reaction of degeneration. Excitability by the faradic current is lost outright, although there may be for a time some response to galvanism. If we examine very early in the development of the case we may find hyperexcitability, but this soon disappears.

Something may be learned of the condition by mensuration of the two sides; because arrest of development of the paralyzed limb may cause diminution in both the length and circumference. This arrest of development rarely becomes so extreme in degree that the trophic muscles lose all their contractile power. As a rule, the electrical reaction of merely weak or atrophic muscles varies directly with the amount of power which still remains. After tendon transplantation and the correction of faulty positions, some of these weakened muscles may rapidly regain the natural size.

So important is a correct diagnosis of the condition of the muscles, and so difficult is it under certain circumstances to make such a diagnosis that operators are in accord as to the occasional necessity of direct inspection of the muscular bellies. This is readily done by prolonging the original incision necessitated by the operation itself. The paralyzed muscles give the yellow hue of fatty degeneration, healthy muscles are deep red, while merely weakened or atrophic muscles vary from deep red to pale pink, according to circumstances.

Vulpius gives the indications for transplantation as follows: The operation is impracticable only when all the muscles of the limb are paralyzed. If one muscle or group of muscles be still intact, we may think of the possibility of improving the functions of the limb by transplantation and of preventing or removing the secondary contractures or deformities.

He shows schematically nine methods by which tendons may be anastomosed. Thus, both may be completely severed, and the sound central stump implanted into the paralyzed peripheral stump. Again, the sound tendon may be completely divided and its central end implanted upon a sliver detached from the paralytic tendon, etc. The use of the sliver in grafting appears to be indicated when the muscle to be aided is merely weak, but not actually paralyzed. When the functional loss is total, many surgeons feel justified in sacrificing a sound muscle which can be better spared than the paralyzed one. But if the muscle to be assisted be only paretic, we are not justified in sacrificing a good muscle to help it and should do no more than reinforce it by attaching to its tendon a sliver from that of some synergist.

In a long-standing deformity which is not of extreme degree, we should correct the position of the foot as in congenital talipes; or, in other words, treat it by mechanical methods at the outset. The greater the degree of paralysis, the fewer in number the sound muscles; the less the degree of deformity, the easier it is to correct the position of the foot and keep it retained. It is well, of course, to overcorrect the position to a slight extent. When this preliminary task has been accomplished we are free to proceed.

This brings me to a consideration of the operation itself. Since no less than six operators appear to have independently introduced tendon transplantation into the surgical treatment of certain deformities resulting from anterior poliomyelitis, it is evident that considerable differences in technic must result. But to Drobnik must be given the credit of being practically the first surgeon to succeeed in this operation and to formulate general fundamental principles. Asepsis, of course, is very necessary, and if we have union *per primam,* there should be no adhesions to interfere with the movements of the muscles.

I prefer to use an Esmarch bandage in these cases. Upon cutting down over the parts to be modified, the tendons of the paralyzed muscles are seen to be atrophied, so that the diagnosis is either confirmed or must be changed. I would recommend exposing the muscle belly to a very slight extent in order to note its color. The tendon sheaths are now opened and the tendons isolated for a considerable length. The method of division advised by Drobnik is recommended. If the two tendons to be anastomosed be at some distance from each other, subfascial undermining will be necessary. I would emphasize the necessity of blunt dissection in the divison of a muscle belly. Drobnik advises separation according to the natural grouping of the muscular fibers in order to spare the nerves of the muscles. The same blunt dissection is applied to the separation of a muscle from bone.

The length of the segments to be prepared may be measured by the eye or by a silk thread, to be more accurate. The anastomosis is made as follows: The muscle and tendon to be transplanted are strongly stretched, in order to make them correspond to the natural state of relaxation. But before this is done the tendon of the paralyzed muscle is drawn strongly forward, thereby placing the extremity in a hypercorrected position. The tendon of the paralyzed muscle is then freshened upon one edge or else slit up, and the tendon of the sound muscle is united with the freshened surface or grafted into the slit of the paralytic tendon. A tunnel should be improvised with the forceps or some like instrument, running from one tendon to another, and the graft may be placed in this passage with the assurance of the formation of a new sheath and with little to fear from adhesions provided perfect asepsis has been observed throughout. It has been my practice to make a button-hole for the reception of the transplanted tendon, the suture material consisting of silk or kangaroo tendon; personally I have used both materials at various times.

The first suture is placed at the site of transition of the muscle belly into its tendon. After this is done, the tendon sheaths, if possible, are drawn together and united by several silk sutures, but at times this is found to be very difficult and is unnecessary. The edges of the sheaths must be so disposed as to exert no pressure upon the tendons beneath.

Many surgeons fear the secondary contractures in the antagonists in partial paralysis, thus leading them to tenotomize these muscles as a routine procedure. I have come to believe, however, from experience, that such intervention is not always necessary, but may be in some cases. In fact, the writer, in some instances has substituted for tenotomy, stretching of the contracted muscles and complete correction of position by frequently changing the plaster dressings, before the transplantation.

After grafting we must favor the newly-arranged muscles as far as possible. Tenotomy is therefore contraindicated to a certain extent, being a possible source productive of weakness. Having newly-formed, naturally-feeble muscles opposed to antagonists which are most likely hypertrophied, we ought therefore to support the former. This may be accomplished by arranging the surgical dressing in such a manner, with the aid of adhesive plaster, as to give the proper support to those muscles requiring it.

During the early portion of the post-operative period, plaster-of-Paris dressings will be found superior to any form of apparatus. Later, after the contractures have been overcome, apparatus may be worn. Without being able to explain why, Drobnik recommends that the first attempts at walking should be made barefooted.

The after-treatment may be justly regarded as being of the greatest importance. Much depends upon the child, its degree of intelligence and self-command. The physician should remain in full control of the case after operation; no matter how intelligent the lay associates of the patient, it is a mistake to entrust the responsibility to them; it is owing to this lack of proper care following operation that leads me to state that many results which might have proved successful have failed for want of skilful and intelligent observation during the convalescence. It is advisable not to permit motion until six weeks to two months have elapsed and then to begin gradually. Electricity and massage will be found to be of the greatest service.

In regard to the ultimate results with especial reference to the wearing of braces, I am of the opinion that we must seldom expect to secure by transfer of function alone complete equilibrium between antagonistic muscles. We must content ourselves with a gradual strengthening of those portions of muscles which are compelled to perform new duties.

The impression possibly derived from this study is that the subject of indications, contraindications, technic and after-treatment is still in the formative period, and that only after continued and extended experience on the part of those who are taking up this work can a definite manual of operative procedure be adopted. We certainly have here an elaborate field of gratifying work, in which, by the surgical intervention of tendon transplantation, we may afford relief in many conditions heretofore pronounced incurable.

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A CASE OF STRANGULATED HERNIA OF THE OVARY AND FALLOPIAN TUBE.

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M. E. W., a cook, aged forty-four years, was admitted to St. John's Hospital in October with a painful tumor of the left inguinal region. Her history was as follows: At the age of eight years she had been kicked by a horse, after which a tumor appeared in the left inguinal region, evidently a hernia. No treatment was given and after an interval the length of which the patient does not recollect the hernia disappeared. At the age of forty (that is, four years ago) the hernia reappeared, but was easily reduced and gave no further trouble until two years ago, when it again reappeared and was again reduced as before, no tumor being present after reduction. Patient has borne six children. Ten days before admission into hospital, while lifting a heavy weight she felt a sudden pain in the left inguinal region and a small tumor, which she could not reduce as usual, appeared in that situation. The following day it had increased in size and was very painful. This condition continued, the pain, however, becoming more severe; at no time were were there any symptoms pointing to a strangulated hernia of the bowel, although slight nausea had been complained of. On admission to the hospital her temperature was but 99.5°F.; although there was a hernial tumor in the groin that was strangulated it was evident that it could not be the bowel. It was hard to the touch, dull on percussion, and had a distinct impulse on coughing. The skin was slightly reddened over the tumor. It was thought that a portion of the omentum had become caught in the grip of the inguinal opening and immediate operation was decided upon.

The usual incision for hernia was made and a much thickened sac exposed. On opening this, it became at once evident that we had to deal with a hernia of the left Fallopian tube and ovary, together with an abscess in the tube. The ovary, much changed in appearance, lay in its usual position behind the tube and was cystic. The fimbriated extremity of the tube seemed almost normal, but about an inch and a half from the extremity there was a dilatation of its caliber which proved to be an abscess cavity containing about half an ounce of thin purulent fluid. This was ruptured in process of separating the adhesions which had formed between the much-thickened tube and the hernial sac. The round ligament was also a part of the hernial contents and was greatly enlarged, being at least the size of the middle finger. Microscopical examination showed this thickening to be inflammatory solely, nothing but a characteristic small round-cell infiltration being present. The removal of the sac and its contents was accomplished without opening the abdominal cavity and it was therefore deemed inadvisable in view of the suppurative process to subject the patient to the risk of separating the adhesions and the sac; so the stump of the broad ligament was sutured in the inguinal canal, much after Kocher's fashion of securing the sac in his operation for the radical cure of hernia, the external oblique being sutured in the usual manner; after a thorough cleansing with salt solution the external wound was closed without drainage. The patient made a good recovery. Subsequent examination showed that the uterus was well over to the left side. In this case it seems as if it were impossible for the woman's account of herself to have been correct. The peritoneum of the broad ligament was firmly adherent to the parietal peritoneum and the adhesions there and in the sac were of ancient date, so that the abdominal cavity was entirely shut off from the inguinal canal. Reduction could never have been complete, but must have been partial or "en masse," and even this was not possible after inflammatory process took place in the tube with abscess-formation and inflammatory changes in the round ligament and other structures. No twist had taken place in that part of the broad ligament which had been dragged through the hernial opening, for the vessels lay on the pelvic side of the tumor in their usual situation. It is not impossible that this was not properly a strangulated hernia, but simply a hernia of the ovary and tube with an inflammatory process starting in the tube and extending subsequently to the adjacent structures.

Cases of hernia of the ovary are not so rare as may be supposed. I have been able to collect about one hundred. The first case on record is that of Gouey of Rouen, in 1716, and is referred to by Barnes in his work on the diseases of women. Here gestation occurred in a hernial sac and the reporter operated and removed a three-months embryo. However, while the pregnancy is cited as conclusive proof of the existence of an ovary in the sac, in which opinion Cruveilhier, who also refers to this case, concurs, it does not seem to me as proven, and I should be inclined to place this case as the first recorded successful operation for extra-uterine gestation rather than as an ovarian hernia. Pott's case, however, in 1756 is authentic. Here the ovaries were removed from a hernial tumor in each groin, the patient being a woman of twenty-six. No further menstruation occurred. In 1779, Desault reported a case of inguinal hernia containing the left ovary, tube and an elongated cornu of the uterus. In the last century the cases which have been reported have been relatively quite numerous so that now they number over one hundred.

A careful survey of the literature brings out the following facts which are of interest: (1) Congenital herniæ of the ovary are always accompanied by a hernia of the tube as well; (2) In very many of these cases other congenital defects, notably of the genital tract, exist. In six of the early cases reported there was an absence of the uterus and a number of other cases have been reported in which there was a shallow or absent vagina, and in one case the woman had a spina bifida. A closer examination of many of the cases reported in literature with reference to the presence of similar defects would perhaps have shown them. Another peculiarity of these herniæ is that a large number of them have occured in very young children, as young as three months, and most of them in young girls. So frequently has this been the case that one French observer has written a monograph on "Hernie de l'ovaire, particulierement chez la petite fille." These two facts, namely, the occurrence of other defects of development and the frequent occurrence of the hernia in very young infants, gives us the clue to the pathology. In the male in fetal life the testicles lie in the lumbar region of the abdomen. From this point they are gradually shifted, until about the seventh month they are opposite the inguinal canal, which they enter at the eighth month. The descent of the testis into the scrotum is intimately connected with the gubernaculum. This is a bundle of muscular fibers which become developed from the mesorchium while the testis is still an abdominal organ. As this fold shortens it draws the testis into the inguinal canal and finally into the scrotum. In the female the gubernaculum is represented by the round ligament. Now it is well known to all teratologists that sexual confusions take place during the development of the fetus which result in the various phenomena of so-called hermaphroditism; these may vary from a simple hypospadias in the male to the more serious defects which make the distinction of sex often difficult. I believe that the cases of congenital hernia of the ovary of the inguinal variety may be attributed to the same condition of perverted development, so that the ovary takes the course of a testicle. Be it remembered that the ovaries also undergo a considerable change of position in the course of development which is accompanied by a shortening of the band which corresponds to the gubernaculum testis. This band, as it passes by the united part of the Müllerian ducts which are forming the body of the uterus becomes laterally attached to that organ, and the descent of the ovary is normally arrested at the side of the uterus. When this does not happen, the ovary follows the course of the testis and may be found as low as the labium majus. Exactly the reverse happens in the male, in which case, as a result of a faulty development of the gubernaculum, the testis does not descend and the individual becomes a cryptorchid. Much the same results follow in both sexes from the presence of the distinctive sexual glands in the inguinal canal. The tumors are always painful on pressure and in the female become enlarged during menstruation and also, according to some observers, during sexual excitement. In one reported case the painful crises resulting from a double inguinal hernia of the ovaries had driven the woman to several attempts at suicide; the removal of the offending glands resulted in cure. Extra-uterine pregnancy is said to be quite common in cases of hernia of the ovary. It is likely that such cases would occur when there is a hernia of both ovary and tube. Here, as a result of the constriction of the tube, there is likely to be at least a catarrhal salpingitis, and as the tube and ovary are shut off from the abdomen by the neck of the sac it is possible for a discharged ovary to reach the diseased or obstructed tube alone, and as a natural result we should expect an extra-uterine pregnancy.

Of all the varieties of ovarian hernia, inguinal is the most common. In 3 cases reported by English, 27 were inguinal, 9 crural, one into the obturator foramen, and one into the sciatic notch. The inguinal is apparently the only class that deserves the name of congenital, the other varieties being all acquired. As a notable instance of what can occur, one case is reported in which the uterus with both ovaries and tubes was found in the sac of a femoral hernia. In many cases of inguinal hernia one cornu of the uterus has been found in the sac; when a sound has been passed into the tube, it has always passed an abnormal distance before meeting the uterine cavity, in one instance nineteen inches. The hernia of the uterine cornu is always secondary to the ovarian and tubal hernia and is the result of traction, the uterine tissue being drawn out.

It seems not impossible that the cases of uterus bicornis reported in connection with this defect may not have been, indeed probably were not, congenital but rather resulted from the constant traction on the uterine tissue caused by the hernia. In a number of these cases the round ligament was found much hypertrophied. One writer uses the exact expression that I have in describing the size of the ligament, "as large as the finger." So, too, the statement has been made as the result of observation that during menstruation the size of the round ligament becomes increased. A permanent increase in size would be the result of frequent congestion which, owing to the constriction of the sac, would most certainly become chronic. It is not unlikely that strangulation of these herniæ may be due to this slow increase in size and to an incident inflammatory process. From the history of the other strangulated cases, as well as that of my own, the process does not seem to have been very acute.

When an inflammatory process has taken place and the hernial sac contains no intestine, the method I followed seems to possess some advantages, inasmuch as it firmly closes the ring with tissues already organized and does not subject the patient to the risk of opening the abdomen, which latter is quite unnecessary. In those cases in which the herniated ovary and tube can be returned to the abdomen, the condition of these structures will decide the advisability of their removal. If reasonably healthy they may be returned and the Bassini operation for the cure of the hernia will usually prevent its recurrence. In all cases of hernia of the ovary, operation is required, so general and complete is the disability consequent on this condition. Many of these ovaries, particularly when the hernia is of long standing, become cystic. Indeed, it may be difficult to find any trace of ovarian tissue left, so altered may the structure become through changes in its nutrition. The mortality of the operation is very low; I have been able to find a record of but one death. One reason for this low mortality even in preantiseptic times is the fact that all the operations have been extraperitoneal.

With reference to the acquired herniæ, it may be observed that they nearly all occur on the right side. This is due probably to the fact that the right ovary is more nearly in the iliac fossa than is the left, which usually lies deeper in the cul-de-sac. Acquired herniæ are also usually single. A number of cases of hernia of the ovary have been reported in very young children, the youngest being but three months old. Barnes explains these cases by the fact that the uterus and tubes and ovaries lie much higher in the infant than in the adolescent, but this does not seem to the writer an adequate explanation. As before stated, the very fact that these herniæ occur in very young infants, together with the fact that in many cases other defects were reported, seems to give color to the belief expressed that these herniæ are due to defective development.

The diagnosis of ovarian hernia before inflammatory changes have taken place ought to offer no special difficulties. The presence of a small tumor in the inguinal, or more rarely the femoral regions, enlarging during menstruation, always tender to the touch even though no trace of inflammation be present, should warn us that we have an ovary to deal with rather than an epiplocele. Indeed, if we except the added tension and size of the tumor during menstruation, these cases resemble their counterparts in the male of undescended testis. The influence of the menstrual epoch on such an inguinal or femoral tumor will of course be the strongest corroboration. In my own case, as I did not see the patient until after the advent of a more or less acute process, when the tenderness was general and evidently due to the inflammation, the error in diagnosis was perhaps pardonable. At all events the treatment of this condition is by operation and must consist either in the return of the herniated ovary to the abdomen or in its removal.

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THE RESURRECTIONISTS OF LONDON AND EDINBURGH.[1]

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At the present time when there is practically no incentive to the desecration of graves and theft of bodies for anatomical purposes, the extent to which the practice prevailed less than one hundred years ago seems hardly credible. In the latter part of the eighteenth and the early part of nineteenth century the pursuit of the study of anatomy was being carried forward with the greatest ardor by those who had been the disciples of the Hunters in London and of the Monros in Edinburgh. The only law by which an attempt was made to regulate the allotment of anatomical material in Great Britain was the statute by which the bodies of certain legally-executed criminals were directed by the judge to be given over to the surgeons for dissection. The supply from this source was meager, the desire for subjects correspondingly great; and in response to this demand a despicable class of thieves arose who eked out a wretched livelihood by stealing corpses and selling them to medical men. The men who thus regularly trafficked in corpses became known as resurrectionists, an obvious reference to their methods of work. It is to this now fortunately extinct gentry and to some of their exploits and adventures that I would call your attention. As we shall see, they filled an important niche in the temple of science in their day, nevertheless we can only be too thankful that the niche and with it the necessity for its occupants have been removed.

Until 1832 there was actually no law so regulating the disposal of the dead as to interfere with the sale or purchase of corpses by any who might desire to dispose of or acquire them. No matter what disgust this villainous traffic might inspire in the mind of a teacher of anatomy, he was, nevertheless, obliged to avail himself of the services of the resurrectionists, or go without material while the tables of his rivals were well stocked. In many instances the medical students were only too glad to engage in such an adventurous business as the despoiling of a grave, and the practice was winked at if not encouraged by most of the teachers, although, of course, they never allowed such connivance to become publicly known. Many expedients were advanced from time to time in order to overcome this scarcity of bodies, many of them humorous, few of them practical.

Thus, in that curious little fund of medical stories called "Professional Anecdotes, or Ana of Medical Literature," which was published anonymously in London in 1825, there is a most amusing section entitled "Reflections on Human Dissections," in which the author suggests what he claims to be a practical method of supplying necessary anatomical material, at the same time obviating the objections advanced against the method then in vogue. He writes:

"To return, however, to the plan we intended to project, as it is a well-ascertained fact that in medical experiments the first essays should be made upon the experimentalist (Stoerch, of Vienna, tried his poisons first upon himself, and thereby acquired merited honour, and, more recently, Mr. Jukes, a daring and intrepid surgeon, in our own country, swallowed tincture of opium enough to kill a jackass, for the purpose of shewing the utility of his machine in extracting it from the stomach), our plan, therefore, is that the loyal members of the faculty, and we would propose, *imprimis,* Sir Astley Cooper, Sir Everard Home, Messrs. Abernethy, Bell, Brodie, and other equally distinguished practitioners, to set the first example of this laudable scheme, and to form themselves instanter into a regular association, by letters-patent or otherwise, inviting all surgeons, physicians, apothecaries, accoucheurs (with the exception of confirmed quacks, to whom anatomical knowledge is too abstruse and far-fetched a science) to dissect one another, in the regular succession of their deaths. At first, in all probability, the ravages of the grim king, among themselves, might not be adequate to the demands of their numerous pupils; but, as the society increased, as it would be sure to do, there could be little doubt of a plentiful supply . . . What an intellectual feast must the *fellows* of the faculty then enjoy, when they reflect that, instead of having their minds embittered with such cannibal ideas, they behold in distant but true perspective, the noble end they gratify. What a luxury to hope that one day, and that not far distant, another Monro, Cruikshank, or a John Hunter, may be exhibiting to wondering spectators the beauty of their lymphatics—some Abernethy, yet in embryo, a bladder filled with calculi—some Astley Cooper shewing the forces of the circulation, after having tied the aorta—some subsequent Ware expanding the delicate membranes of the eye, or demonstrating the opacity of the christalline (sic) lens or its capsules!"

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[1] Read by invitation before the Book and Journal Club, Baltimore.

The same idea is referred to in the same book in the following quotation from the supplement to the British Pharmacopœia: "As to the supply of subjects, the practice of the German and Swedish universities in carrying the bodies of the professors and servants of the universities to the anatomical theatre for inspection before burial is the most rational, and might be extended to the whole medical faculty, their wives, and children under age and unmarried, by an act ordering their bodies to be carried to the nearest hospital, or the senior surgeon of the hundred, etc., for anatomical inspection . . . If the supply obtained was not sufficient, the bodies of the beneficed clergy and of the holders of offices under government, with that of their wives and children, would surely suffice, and the tacking of this condition to the acceptance of these charges and offices in future would injure none."

Sometimes a doctor was so fortunate as to have a body willed to him by its quondam owner. Thus the following letter was found among the papers of a Mr. Goldwyre, a surgeon of Salisbury, England:[1]

"*To Mr. Edward Goldwyre, at his house, on the close of Salisbury.*

"Sir: Being informed that you are the only surgeon in this city (or county) that anatomises men; and, I being under the present unhappy circumstances, and in a very mean condition, would gladly live as long as I can; but, by all appearance, I am to be executed next March, having no friends on earth that will speak a word to save my life, nor send me a morsel of bread, to keep life and soul together until that fatal day; so, if you will vouchsafe to come hither, I will gladly sell my body (being whole and sound) to be ordered at your discretion; knowing that it will rise again at the general resurrection as well from your house as from the grave. Your answer, sir, will highly oblige,

Yours, etc.,

"(Signed) James Brooke.

"Fisherton-Anger Gaol, Oct. 3, 1736."

Dr. Monsey, a distinguished but very eccentric physician, left directions that after his death an autopsy should be performed on his body in the presence of the students at Guy's.

Jeremy Bentham, the eminent philosopher, bequeathed his body for the purposes of dissection, and, clad in the clothes he usually wore, his skeleton still hangs in University College, London.[1]

The ardor of the anatomists brooked no obstacle. In 1831 and 1832 Edinburgh was scourged by a cholera epidemic. The teachers of anatomy continued to seize almost every corpse which was unclaimed of the victims of the disease and the dissecting-rooms were filled with them. No cadaver became too loathsome for their purposes and bodies were utilized long after decomposition had begun.

The occasional theft of bodies from graves was an ancient practice. Lonsdale[2] quotes from the records of the College of Surgeons of Edinburgh a minute recorded as early as May 11, 1711, in which there is a reference to a recent desecration of graves in Greyfriars churchyard, and another dated January 24, 1721, by which it is ordered that a clause should be put into all the indentures of apprentices directing them to refrain from the violation of churchyards. Several good accounts of the men who followed the occupation of resurrectionists as a more or less constant business have descended to us, from which it is possible to form some idea of their appearance and habits. They figure in many works of fiction; all will recall Jerry Cruncher in "The Tale of Two Cities." Robert Louis Stevenson's story of "The Body Snatcher" I will elsewhere refer to. Mr. Bailey enumerates the following novelists who have utilized the resurrectionists in their works: Moir in "Mansie Wauch," Lytton in "Lucretia," Mrs. Crowe in "Light and Darkness," and Miss Sergeant in "Dr. Endicott's Experiment." Alexander Leighton wrote "The Court of Cacus, or the Story of Burke and Hare." Lonsdale, who knew all about the resurrectionists and from whose data much information is to be derived, says, "Their countenances betrayed a sinister expression, and their dress, always shabby neither betrayed the artisan, nor the lowest of tradesmen; they were nondescripts in person as they were in character. They did their best to avoid recognition, and always seemed in a hurry to place their box in the coach 'boot,' or to get their casks on board ship."

Sir Astley Cooper said before the Committee on Anatomy of Parliament that he considered resurrectionists "the lowest dregs of degradation. I do not know that I can describe them better;

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[1] Professional Anecdotes, Vol. II., page 56, London, 1825.

[1] Diary of a Resurrectionist.

[2] Life of Robert Knox.

there is no crime they would not commit; and, as to myself, if they should imagine that I would make a good subject, they really would not have the smallest scruple, if they could do the thing undiscoverd, to make a subject of me." He added that there was no person, however exalted his rank, whose body, if he were disposed to dissect it, he could not obtain.

In 1828 the police stated that there were but ten men in London who made their living solely as resurrectionists, but upward of two hundred were engaged in following the occupation as occasion presented. They were terrible extortionists, levying blackmail on the anatomists over whom they held the whiphand, partly because of the necessity that their schools should be sufficiently supplied with material, and partly because of the questionable legality of their transactions with them. The resurrectionists always demanded a retaining fee at the opening of the session, and at the end they always required a gratuity, which was euphoniously termed "finishing money." If one of them was so unlucky as to be arrested and sent to jail, the unfortunate anatomist for whom he was working at the time was obliged to contribute to the support of his family during his incarceration, and to give the man a sum of money on his release. There are numerous entries of various amounts paid to this effect in the account books of Sir Astley Cooper.

By far and away the most interesting information concerning the resurrectionists is to be found in the anonymous "Diary of a Resurrectionist." The original document is absolutely authentic, having been given to Sir Thomas Longmore by its author, and by Sir Thomas in turn given to the Royal College of Surgeons of England. It is very brief and contains, besides its memoranda, a carefully copied series of "Rules for finding the moon on any given day." Mr. Bailey, the librarian of the Royal College of Surgeons, first published it in 1896, accompanying the edition with some chapters on the history of resurrectioning. The work is most entertaining. The author, Mr. Bailey thinks, was probably a man named Naples, a member of the most expert gang of resurrectionists ever known, that which was led by Ben Crouch. The latter was a big, powerful man, quite famous as a prize-fighter. His father was employed as a carpenter at Guy's Hospital, which probably explains the way in which he first became attracted to resurrectioning. He was always expensively dressed and wore much jewelry. In 1817 he and Jack Harnett, another of the gang, gave up resurrectioning and began the business of supplying dentists with human teeth. They got sutlers' licenses and followed the English army to France and Spain. After a battle they would get as many teeth as possible from the dead, likewise stealing any money or valuables that might be found on the corpses. They made much money and Crouch set up in the hotel business at Margate. He lost all his money, however, as people learned of his former life, and finally died in great poverty. Jack Harnett succeeded in keeping his ill-gotten gains and died well-to-do. His uncle, Bill Harnett, was also in the resurrection gang.

There were three other men, Butler, Light, and Holliss, who figure in Naples' "Diary" as his coworkers. Every one of them died in great poverty and wretchedness. For Naples himself I must confess to a sneaking fondness. Bransby Cooper said he was "a civil and well-conducted man, slight in person, with a pleasing expression of countenance, and of respectful manners." His father was a stationer, and Naples in his early years was a sailor in the British navy. On leaving the navy he became a grave-digger and from that it was easy to graduate into a resurrectionist. After the passage of the Warburton Act he became an employee in the dissecting-room of St. Thomas' Hospital. His "Diary" consists of a number of jottings relating to his occupation. The first is dated November 28, 1811; the last December 5, 1812. They chiefly relate to the number of bodies obtained, the places they were taken from, and to whom they were sold. Some nights as many as ten bodies were stolen. There were many fights among the members of the gang, and they were all of them hard drinkers. Sometimes the moon is noted as being full, thus interfering with their plans for the night; sometimes one or all of the gang got into a similar condition with an identical result. Mr. Naples gravely mentions that he himself proved a marplot on several occasions in this wise. Frequently Naples states that after all the trouble they had gone to the corpse which was dug up would prove useless to them, usually from decomposition, at times because of mutilation, and once, it is asserted, because of smallpox. Naples "Diary" does not throw much direct light on the methods employed by his gang, but from other sources the means utilized in their nefarious pursuit can be gathered. Thus, in the "Autobiography of Sir Robert Christison, Baronet," there is an excellent description of the method pursued by the resurrectionists in their labors. From the relish with which the venerable Baronet relates the adventures of these knights of the graveyard one can not help suspecting that in his salad days he may possibly have been a participant in the unhallowed sport. He tells how the public became so alarmed over the frequency of the grave-robberies that massive iron cages were in many instances placed over graves, or iron bars riveted over coffins after interment. In the "Diary of a Resurrectionist" there are pictures of some of these mortsafes. Sir Robert Christison writes:

"The time chosen in the dark winter nights was, for the town churchyards, from six to eight o'clock; at which latter hour the churchyard watch was set, and the city police also commenced their night rounds. A hole was dug down to the coffin only where the head lay. A canvas sheet being stretched around to receive the earth, and to prevent any of it spoiling the smooth uniformity of the grass. The digging was done with short, flat, dagger-shaped implements of wood, to avoid the clicking noise of iron striking stones. On reaching the coffin, two broad iron hooks under the lid, pulled forcibly up with a rope, broke off a sufficient portion of the lid to allow the body to be dragged out; and sacking was heaped over the whole to deaden the sound of cracking wood. The body was stripped of the grave-clothes, which were scrupulously buried again; it was secured in a sack; and the surface of the ground was carefully restored to its original condition—which was not difficult, as the sod over a fresh-filled grave must always present signs of recent disturbance. The whole process could be completed in an hour, even though the grave might be six feet deep, because the soil was loose, and the digging was done impetuously by frequent relays of active men. Transference over the churchyard wall was easy on a dark evening; and once in the street, the carrier of the sack drew no attention at so early an hour." In country churchyards the work was undertaken at a late hour, when the neighborhood was composed to sleep.

Mr. Bailey quotes from the memoir of Thomas Wakley, published in the *Lancet*,[1] an account of a very ingenious plan said to have been occasionally practised by the resurrectionists. "In the case of a neat or not quite new grave, the ingenuity of the resurrectionist came into play. Several feet—fifteen or twenty—away from the head or foot of the grave, he would remove a square of turf, about eighteen or twenty inches in diameter. This he would carefully put by, and then commence to mine. Most pauper graves were of the same depth, and if the sepulcher was that of a person of some importance, the depth of the grave could be pretty well estimated by the nature of the soil thrown up. Taking a five-foot grave, the coffin lid would be about four feet from the surface. A rough slanting tunnel, some five yards long, would, therefore, have to be constructed, so as to impinge exactly on the coffin head. This being at last struck (no very simple task), the coffin was lugged up by hooks to the surface, or, preferably, the end of the coffin was wrenched off by hooks while still in the shelter of the tunnel, and the scalp or feet of the corpse secured through the open end, and the body pulled out, leaving the coffin almost intact and unmoved. The body once obtained, the narrow shaft was easily filled up and the sod of turf accurately replaced. The friends of the deceased, seeing that the earth *over* his grave was not disturbed, would flatter themselves that the body had escaped the resurrectionist; but they seldom noticed the neatly-placed square of turf, some feet away." There is, however, much doubt as to whether such a method was ever really used. Mr. Bailey advances good reasons against its practicability. The author of the "Diary of a Resurrectionist" had yet another plan which he revealed before the Parliamentary Committee. He would take the body out of the coffin, and while still in the grave place it in a sack. He would then throw earth in, as he shoveled it in gradually pulling the sack upward to the top of the grave. When the filling-in was complete, the sack would be at the surface.

In the pursuit of their calling the resurrectionists met with many thrilling adventures and were obliged to resort to many ingenious expedients to secure their objects, or subjects. The anatomists were as keen as their employees. John Hunter's successful chase after the body of O'Brien, or Byrne, the Irish Giant, is familiar to most of us, but it will bear repetition. O'Brien died in 1783. Ottley's "Life of Hunter" contains the following account of the disposition of his body:

"He had been in a declining state of health for some time previously, and Hunter, anxious to procure his skeleton, set his man Howison to keep watch on his movements that he might be sure of securing his body at his death. Byrne learned this and as he had a horror of being dissected determined to take such precautions as should ensure his not falling into the hands of the doctors; he accordingly left strict orders that his body should be watched day and night until a leaden coffin should be made, in which it was to be inclosed, and carried out to sea and sunk. Byrne died soon after and in compliance with his directions, the undertaker engaged some men to watch the body alternately. Howison soon learned this, found out the house where these men went to drink when off duty, and gave information to Hunter, who forthwith proceeded thither with the view of bribing them to allow the body to be carried off. He had an interview with one of the party at the ale-house, and began by offering him fifty pounds if he would allow the body to be kidnapped; the man agreed, provided his companions would consent, and went out to consult them. He returned shortly, saying that they must have a hundred pounds. Hunter consented to this, and thought the affair settled; but the men, finding him so eager, soon came back with an increased demand, which was also agreed to; when further difficulties were found, and larger and larger demands made, until, it is said, they raised the price to five hundred pounds! The money was borrowed to pay them; and in the dead of night the body was removed in a hackney-coach, and after having been carried through several streets was transferred to Hunter's own carriage and conveyed immediately to Earl's Court. Fearing lest a discovery should take place, Hunter did not choose to risk the delay which the ordinary mode of preparing a skeleton would require; accordingly the body was cut to pieces, and the flesh separated by boiling; hence has arisen the brown colour of the bones, which in all other respects form a magnificent skeleton."

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[1] 1896. Vol. 1, p. 187.

Lonsdale relates several excellent anecdotes about the guild, of which I will quote the following examples:

"A country lad whose disease had excited large interest, and upon whose case numerous medical men had been consulted, at length succumbed to hydrocephalus, and his body was buried in the exposed cemetery of a fishing burgh on the shores of the Firth of Forth. Having strong suspicions of the doctors, the friends of the deceased engaged trustworthy watchers of his grave—men who for night after night, and week after week, resisted every overture of bribes and whisky offered them by the resurrectionists. The agents of Monro and Barclay and others were all intent upon what, in the language of the schools, was termed a 'rare osteological specimen;' money was abundantly lavished, and every artifice and intrigue put in force to obtain the subject; but all to no purpose. Weeks had gone over, and the excitement of the contest between the 'watchers' and the besieging force of resurrectionists had passed away, when one evening at dusk two well-dressed gentlemen, smoking their cigars, drove up in a dog-cart to the chief hostelry of the little burgh; they alighted, and requested that their horse might be taken care of for an hour. The 'whiphand' gentleman told the ostler that he expected a livery servant to bring a parcel for him, which could be put in the box part of the conveyance, to which the key was attached. In a short time a man in smart livery came to the stable-yard, deposited a bag under the seat of the dog-cart, pocketed the key, and walked off—'a canny silent man, or dull o' hearing.' Presently afterwards the two gentlemen returned to the inn, ordered out their 'trap,' and trotted off at a brisk pace. The sharp-eyed stable-boy could not help remarking that the 'livery-man' who brought the bag was deuced like the off-side gentleman, and fancied he saw a bit of the scarlet lining under the said gentleman's brown overcoat. 'Haud yer tongue, Sandie,' said the lad's superior; 'ye're aye seeing farlies.' Whilst the unknown gentlemen were trotting homewards at full speed, the watchers of the night, or rather the guardians of the hydrocephalic body, were approaching their post of duty. As usual on entering the cemetery, they looked at the grave to see that all was right; but to their astonishment found that it had been disturbed; nay, more, that the coffin was broken, and that the body was gone! What! abstracted in daylight—impossible, yet too true! The reader will have surmised that the 'dog-cart gentlemen' were the depredators, and most expert ones too; for they had done a piece of work that had baffled the ingenuity of the most experienced resurrectionists of Scotland. Availing themselves of the twilight just before the watchers appeared on the ground, they succeeded in disinterring the body and carrying it off in thirty minutes. Two such accomplished artists in their own line as Liston, the Edinburgh surgeon, and Crouch, the London resurrectionist, the world never saw before, and, now that 'Othello's occupation's gone,' cannot possibly see again. A terrible hue and cry was raised in the burgh, that soon extended to Edinburgh; detectives, search-warrants, and all the agencies of the law were put in force, but no clue could be had of the den of Cacus, and of course *non habeas corpus.* Years rolled on; the contents of the big sack, having in the meantime become manipulated beyond 'all mortal ken,' found a resting-place in the noblest anatomical collection of Britain—the donor's name being worthily attached to the *chef d'œuvre* of his body-snatching exploits. The many thousands who during the last thirty years have looked upon this remarkable skeleton, No. 3489, little fancy that its history from first to last would afford materials for a tale of thrilling interest—the truth in the record being stranger than any fiction that could possibly be woven around it."

In another instance a body was stolen from a grave, sold to Lizars, re-stolen from his dissecting-room, and sold over again to Dr. Knox; all within the short space of one hour.

The following description of a party of the ghouls is excellent. I quote it from Lonsdale's "Life of Robert Knox."

"Newly-dead bodies were not so uncommon in the practical rooms. The resurrectionists were always on the *qui vive* for dying persons without friends, and to know all about their history, and, if possible, to personify the individual of whom the deceased had spoken in his or her last moments. Marvelous were the expedients resorted to by these false claimants of the unprotected dead, and equally marvellous was their success, considering that all the various personifications of character rested with so small a group as three or four men, one of whom had to profess direct kinsmanship with the deceased. A rascal of the name of Andrew Lees,[1] was the leading spirit in the funereal line. He was a tall, gaunt fellow, with a long pale face, the muscles of which were exceedingly pliable to any emotional need—tragedy, comedy, or farce. Grotesque in look and gesture, and wearing a cast-off suit of black that had not been made for his 'shrunk shanks,' the students named him 'Merry-Andrew;' and over his cups he could maintain the fool's part well. When assuming the character of mourner, his appearance was dismal enough; his pale face, with dropped jaw, set off by the habiliments of grief and odd manner, far surpassed any theatrical 'get up.' His approach to the house of death was that of a stranger from the country timidly inquiring for a certain house, on entering which his bleared eyes, that would have made the fortune of a London 'mute,' became suffused with tears. After dwelling on the virtues of his 'dear relative,' he would at length intimate that he wished to convey 'the remains' to the family burial-place in the country; that he and some friends would return with a cart and a coffin towards evening. His 'friends,' all in the same line, were, first, 'Spune,' as he was called, a little man who shaved very cleanly, and looked as demure and resigned as a Methodist preacher—so saintly, and, barring his greasy-black clothes, of truly 'sweet savour;' second, Mowatt, who got the name of Moudiewarp (moldewarp) from his successful imitation of the mole burrowing the earth—

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[1] "'Merry-lees' was at one time a carrier between D—— and Edinburgh. His dwelling so abutted the country churchyard that he could enter by his windows and do his resurrectionist work with safety. One night he succeeded in getting three cadavers. As a carrier delivering boxes to the medical schools, no one dreamt of his more profitable pursuit. His drunken habits and loose tongue involved him in suspicion, and D—— became too hot for him; he then headed a party of resurrectionists. When 'subjects' brought double the prices of his first experience, he used to revert to his former facilities when he could obtain them, as he said, 'as cheaply as penny pies.' This hardened sinner drank sixteen glasses of raw whiskey daily; on great occasions he was equal to as many pints!"

> "'Well said, old mole! canst work i' the earth so fast?
> A worthy pioneer!'

third, the mock minister or clergyman, who was personified by a deep-dyed vagabond who called himself Howard, in the hope of hiding his iniquity under a noble English name. Dressed in a black suit, too seedy for even a curate by the fell-sides of Cumberland, and with white choker, the 'praying Howard' officiated *à la mode,* improving the occasion by calling upon those around the bier to reflect on the uncertainty of life and the need of a spiritual regeneration, for man was but a vain shadow; in using these scriptural words, he looked with becoming gravity upon the thin form of Merry-lees, as if to draw the moral or to warn his friend. The group of mourners having played their part, the funeral *cortège* moved towards the suburbs. As soon as night and circumstances favoured the change of scene, the black curtain was raised; the *dramatis personæ* mounted the cart and returned to Edinburgh, and lost no time in transferring the body to the anatomical rooms. With cash in hand, the quaternion had a night of it; and Merry-lees, now seen in his character of the laughing Mercutio, made the welkin ring, till he had put each of his 'friends' below the table dead drunk. The same parties played the same game at the Infirmary, and got several unclaimed bodies; they often dragged in their women coadjutors to aid in the deception practised on the officials of public institutions."

Christison tells us of some narrow escapes. "On one occasion discovery took place at the moment when the sack with its contents was hoisted beside the charioteer. He instantly drove off, while the rest vanished in the darkness in different directions. The charioteer had three miles to drive. Thus he easily distanced his pursuers, left no trace of his destination on reaching town, deposited his booty in an undiscoverable 'sanctum,' and disappeared with his horse and gig before the hue and cry reached the outskirts of the city. Subsequent search by the police proved unsuccessful; but the police were very inefficient in those days—or perhaps their instructions were not to be too zealous.

"So long as Dr. Munro and Dr. Barclay were the only lecturers on anatomy, resurrectioning went on smoothly, because each had by common consent his own territories, on which the other did not encroach. But when Liston also became an anatomical teacher he paid no regard to these prudent arrangements. Competition thus arose; and at last it was no uncommon occurrence for one party to have a look-out-man sitting on the churchyard wall in the dangerous dusk, ready to drop down on the first appearance of the rival party, and appropriate the grave by striding across it. My hospital comrade, Mowbray Thomson, had a risky encounter in this way. Though his assistantship with Dr. Barclay necessarily ceased on his becoming an Infirmary Resident, he had so great a passion for adventure that he used to drop from his window, scale the city wall which then bounded the hospital grounds to the south, and join his former companions in their unholy occupation. On the occasion referred to, he was perched on the churchyard wall as sentinel, when Liston hove in sight with his assistants and a notorious London resurrectionist, Crouch, who had made the metropolis too hot for him and had been taken into Liston's pay as an instructor during his rustication in Edinburgh. Thomson jumped into the burying-ground, sat down across the grave, stuck his digger into it, and when the intruders followed him claimed the grave as his. Liston and Crouch first jeered at him, and then threatened to remove him by force. But, as they drew near for the purpose, he presented a pistol in the face of the foremost, and swore he would defend himself to the uttermost. More altercation ensued, during which succour to the weaker party arrived in the shape of Thomson's companions. A general row appeared imminent; but Liston thought better of it, and left the enemy in undisturbed possession of their claim.

"The rashness and haste consequent on the want of a mutual understanding occasioned repeated exposure of the spoliation practised, both in town and country. Stricter watch was therefore established, and resurrectioning became a more difficult and more unsafe undertaking. The town authorities, however, did not suspect that the work was done in the early evening, and set their watch too late; and in the lonely country churchyards the watchmen were apt to be inefficient through cowardice. William Cameron met with the following exciting illustration of this. He went, with the necessary *corps d'élite,* to a lonely churchyard seven miles from town, separated from the highway by a hedge, a hollow grass field, and the churchyard wall. On arriving at the place, they observed light issuing from the vestry window. A scout was therefore sent across the field to reconnoitre. His companions, by the light of a young moon, could see him crawl across the grass, and stealthily raise his head over the wall, when the vestry door opened, a man stepped out in the bright light, a shot went off, the scout dropped motionless at the foot of the wall, and the shooter retired within the vestry and shut the door. A cloud obscuring the moon prevented Cameron from recognizing the state of matters. A consultation was held at the hedge whether their comrade should be succoured; and a second scout was about to proceed towards him, when he appeared at the other side of the hedge, laughing at the issue of his adventure, and explaining that he had merely ducked down to hide himself when the watchman stepped forth to fire into vacuity. They then remained quiet for half an hour, when the same farce of firing was repeated, to frighten away depredators, and satisfy the parish that watch was faithfully kept. Taking advantage of the discovery that the churchyard was never patrolled, the spoilers entered it during an interval between the alarms; and, as their object lay on the other side of the church from the vestry, they caried on their operations, with a short interruption as firing-time came round, completed their work, and decamped with their plunder."

So long as the exploits of the resurrectionists were confined to the filching of dead bodies, their proceedings, although they might excite disgust and horror, did not approach the magnitude of crime. But when a corpse could be sold for thirty or forty pounds the temptation proved too much and a class of men arose who made murder not only a fine art, but likewise a lucrative business. There is no doubt that the suspicions of those in charge of dissecting rooms must have been frequently aroused by the condition in which bodies were brought to them, and by the characters and behavior of the men from whom they were purchased. In an editorial in the *Lancet* of January 3, 1820, it is said, "We have ourselves, within a recent period, seen bodies brought into the dissecting room in this metropolis, exhibiting none of the appearances usually found on the bodies of persons who had died from disease, but with all the indications presented by the bodies of men who had died within a few hours, and in a state of perfect health." For some years the *Lancet* had been engaged in an active editorial crusade against the then existing state of affairs regarding the study of anatomy in Great Britain. Attention had been repeatedly called to the facts that certain anatomical schools possessed a practical monopoly of the bodies of criminals; and that outsiders had to depend for their supply on the resurrectionists, and it had been shown repeatedly that Great Britain was the only civilized nation which did not make proper legal provision regarding the disposition of the bodies of the dead, the old parish regulations being absurd relics of medieval times.

The *Lancet* was not alone in directing attention to these evils. The lay press of that time contains frequent accounts of the detection of grave robberies, and details of discoveries made by enterprising reporters of shipments of corpses to various anatomical entrepôts. Thus the public mind was already on the alert and the discoveries of the horrible murders committed by two wretches and their female accomplices in Edinburgh gave the final coup to resurrectioning. Let us devote a short time to a chapter in the annals of crime which for cold-blooded atrocity has rarely been paralleled.

William Burke and William Hare, with Burke's paramour Helen McDougal and Hare's wife, were the thugs whose greed for money led to the reform of the laws regulating the practice of anatomy and removed the students and teachers from the necessity of daily intercourse with thieves and murderers. Burke was a shoemaker by trade. Hare had been a canal boatman, subsequently a fish huckster, and, at the time the murders were committed, a lodging house keeper. It is hard to determine which was the master spirit in their villainies, although the name of Burke is the more familiar as it has become an integral part of English speech. Immediately after his crimes became known, the wretch's name minus the final "e" came into common use to signify suffocate or strangle, synonymous with the phrase to "cut short," *i. e.*, a career, a speech, etc. Their detection was brought about only by their own astonishing boldness and disregard of the most ordinary precautions to escape detection. Let us trace their paths of crime from their first tyro efforts to the termination of their evil careers.

As has been stated, Hare kept a cheap lodging house in Edinburgh. During the Christmas season of 1827 an old pensioner, named Donald, who lodged with him, fell ill and died a short time before his quarterly pension was due, owing his landlord four pounds. Hare proposed to Burke that they might turn an honest penny by the sale of the body to the "doctors" in lieu of the board bill which the deceased had left unpaid. Burke agreed to aid in the scheme. After the body had been placed by the undertaker in the coffin, and the lid nailed down, Hare started the lid with a chisel and assisted by Burke took the body from the coffin, which they then filled up with tanbark, covered over with a sheet. In due time the coffin and its contents were properly interred. Burke and Hare went to the college, where they met a student to whom they confided their desire to dispose of a dead body. He referred them to Dr. Robert Knox, who then lived at No. 10 Surgeon Square. They instantly repaired to that house, where they met his assistant, a Mr. Jones. The latter asked them no unnecessary questions, but bade them return with the body that night, which they did, receiving seven pounds ten shillings as compensation. While they were giving the body to Jones and several others of Knox's assistants the latter entered the room, but also refrained from asking them to relate any particulars as to how they came by the body. Jones made them take off a shirt which was on the corpse and carry it away with them. Jones also told them he would be glad to see them again when they had another body to sell. A few months afterward a woman came to Hare's lodging house. She and the landlord got drunk together and the next morning she was very sick with acute alcoholic gastritis. While she was lying in a semi-stuporous condition Hare closed her mouth and nose with his hands, while Burke sat on her chest until she died. This murder opened the way for many more. A miller named Joseph; an old woman; a man sick with jaundice; an old woman named Haldane; then an elderly cinderwoman; then an old woman and her son twelve years of age; they were succeeded by two more old women, who in turn were followed by Margaret Haldane, daughter of the former victim of that ilk. In April, 1829, they murdered a girl of the town named Mary Patterson. This was a distinct break. The body was brought to the dissecting room only five or six hours after death. The girl was very well known among dissipated medical students and when her body was brought to the table one of the students, who had been in her society a few evenings before, when she had seemed in the most perfect health, recognized her at once. This lad instantly questioned the men as to the cause of her death and in what manner the body had fallen into their possession. They replied that the girl had died as a result of a drinking-bout and that they had purchased the body from an old woman who lived at the back of the Canongate. The girl's beauty of figure was such that not only students but many artists thronged to see the corpse as it lay on the table, and Knox had it put in spirits in order to preserve it until the date of his lectures on myology.

A washerwoman named McDougal, a cousin of Burke's mistress, was their next victim. She was shortly followed by an Edinburgh character universally known as "Daft Jamie." In this case again the victim's features were familiar to many who saw his body on the dissecting table, and its advent there produced much talk. Lastly, they decoyed a woman named Mary or Madge Docherty into their rooms and after a hideous orgie, in which Mrs. Hare and Helen McDougal participated, killed her in their usual fashion. This was on Hallow-E'en, October 31, 1828. At midnight Burke went to Knox's dissecting room and wakening the keeper, a man named David Paterson, requested him to return with him to his lodging, where he had something for the doctor. Paterson went with him and found Hare and the two women in the room; in a corner covered with straw lay the body of the Docherty woman. Paterson told them to see Knox about the payment, which they did at his rooms the next day, after having conveyed the body thither in a sea chest. In the meantime some lodgers in the house where the murder was done had become suspicious. They had seen the Docherty woman enter Hare's room, had heard the sounds of carousing, followed by cries of murder, and later by quiet. When Mary Docherty failed to appear in her accustomed haunts, a search was instituted. It soon leaked out that her body had been sold by Burke and Hare to Knox, and the two former were at once arrested, with Mrs. Hare and Helen McDougal. Hare turned state's evidence, as also did his wife and Helen McDougal, and on their testimony Burke was convicted and sentenced to be hanged. While awaiting execution he also made a full confession. After Burke's execution his accomplices were smuggled away from Edinburgh. Helen McDougal died in Australia. Hare wandered about until, while working as a plasterer's apprentice, his identity became revealed to his fellow workmen. They seized the poor wretch, and either threw him into a bed of lime or threw some of the lime over him, with the result that he lost his sight. He is said to have lived many years afterward.

The trial of the murderers had excited the most intense interest and the facts elicited by it produced a reign of terror and dismay in the minds of the good people of Edinburgh. People were afraid to go alone along the streets after dark, and many thought that Knox was as guilty as Burke and Hare. He was held up to execration in all manner of broadsides and lampoons, and much very poor verse in the form of street balads was written at his expense. One verse, given by Lonsdale, ran as follows:

"Down the Close, and up the Stair,
But and Ben wi' Burke and Hare,
Burke's the butcher, Hare's the thief,
Knox the man that buys the beef."

Several times mobs assailed his house and lecture rooms and his life was endangered. The affair was practically the starting point of Knox's ruin. It was but natural that people should look askance on one who had been in such close association with the perpetrators of such a terrible series of crimes. The popular prejudice was by no means confined solely to the lower classes. The famous Professor John Wilson, "Christopher North," held him up to execration in one of the Noctes Ambrosianæ. Even many of his colleagues, with whom he never dwelt in much amity, felt that he had, to say the least, been very imprudent. Knox demanded an investigation of his conduct by the College authorities, as a result of which they declared him absolutely free from blame. The great teacher of anatomy, however, saw his classes dwindle from the largest in the history of anatomical teaching in Edinburgh to a mere handful. His surgical practice also languished, and, as the iron sank into his soul, he quarrelled with his professional associates and finally left Edinburgh, a gloomy and embittered man. In Robert Louis Stevenson's story, "The Body Snatcher," he depicts under thin disguise Knox and some of the other figures in the tragedy. He evidently believed that Knox and his assistants possessed a guilty knowledge of the source of some of their anatomical material. The traditions of the tragedy hung about Edinburgh for many years. An elderly gentleman who had passed his boyhood in Edinburgh has told me that if a man passed along the streets, carrying an object in a sack, the children would call after him "Sujet!" a Scotch adaptation of the French for subject.

The excitement over the murders committed by Burke and Hare had not entirely subsided before the public was again stirred by the discovery of a trio of equally disreputable villains perpetrating crimes of a similar nature in London. These were John Bishop, Thomas Williams and James May. On November 5, 1831, Bishop and May went to the dissecting room porter, a man named Hill, at King's College, and told him they had the body of a fourteen-year-old boy to sell. The price asked was twelve guineas, but they finally said the College could have it for nine guineas. Some hours later they brought the body to the dissecting-room, being accompanied on this second visit by Williams and a porter named Shields. Williams passed under the alias of Thomas Head. The dissecting-room keeper, Hill, thought the body looked as though the boy had met a violent death and he called the attention of Mr. Partridge, then demonstrator of anatomy in King's College, to the fact. Partridge also deemed the case suspicious, and he delayed the departure of the men by pretending he had nothing less than a fifty-pound note and sending the porter out to get it changed. While waiting he managed to have the police notified and the officers came and arrested the four men who had brought the body. An autopsy revealed that the boy's neck had been broken. Shields, the porter who had helped carry the body to the hospital, was not tried; but Bishop, Williams, and May were tried at the Old Bailey in December, 1831 They were all found guilty and sentenced to be hanged, but May's sentence was subsequently commuted to transportation. After the trial Bishop and Williams confessed that they had killed the boy, and prior to his murder had done away with several other persons. Their method, according to Mr. J. F. Clarke,[1] was as follows: "It was the custom of the murderers to strike their victim on the upper part of the spine, and when insensible to place him head foremost in a water-but." In the "Diary of a Resurrectionist," they are said to have drugged the victim with opium and then let him down a well until he was suffocated. This boy was an Italian, Carlo Ferrari, who used to show white mice for a living. Mr. Partridge suggested an ingenious and successful plan by which the little animals which had been his support in life proved silent though eloquent witnesses against his murderers. Some cheese was placed in the rooms to which the boy had been decoyed and in which his empty mouse-cage was found, and the little creatures came forth to eat it. After killing the boy the murderers had extracted all his teeth and sold them to dentists. They had tried unsuccessfully to sell the body to Mr. Carpus and Mr. Tuson at Guy's Hospital, before taking it to King's College. Mr. Bailey, in his edition of the "Diary of a Resurrectionist," has reproduced sketches of the heads of Williams and Bishop made by W. H. Clift at the Royal College of Surgeons, when the bodies had been brought there for dissection after the execution.

The unearthing of the atrocious crimes of Burke and Hare and Bishop and Williams and the increasing frequency of grave-robberies, the persistent agitation maintained by the press, both medical and lay, and the urgent pleas of the anatomists, coupled with the clamors of the populace, at last forced the British Government to take some action to correct the existing evils which so hampered the study of anatomy and gave employment to resurrectionists and murderers. On August 1, 1832, was enacted the famous Anatomy Act, frequently known as the "Warburton Act," from the name of its chief promoter. It provided for the issuance of "licenses to practise anatomy"; that the Secretary of State should appoint a number of medical men as inspectors, who should each have charge of a certain district from which they should make returns of all subjects removed for anatomical purposes, and no dead body could be removed for such purpose without a certificate issued by one of them; they were also ordered and empowered to inspect all the dissecting-rooms in their individual districts at such times as they might deem proper. Teachers of anatomy were authorized to receive dead bodies only when accompanied by an inspector of their district. Any medical man desirous of teaching anatomy was required to apply to the Secretary of State for authority to receive and dissect bodies. The bill was greatly objected to by many persons, including the editor of the *Lancet*, because it still permitted the purchase and sale of human bodies and did not create any certain source of supply on which the dissecting-rooms could depend. It was, however, a great improvement on the old condition of things and as such was generally hailed with acclamation. A curious popular prejudice prevailed against the setting aside of any particular class of the dead to be objects of the anatomist's art. The old law giving the bodies of legally-executed murderers over to the medical schools for dissection excited an idea in the minds of many persons that there was something degrading in the very idea of human dissection, in other words, that it was a process to be practised only upon the bodies of the most degraded criminals. This prejudice had to be gradually overcome before any legislation could, without outraging the feelings of many persons, provide a sure source of supply. The Act certainly destroyed the profession of resurrectioning. Mr. J. F. Clarke, in his "Recollections," says, "He who recollects the passing of the Anatomy Act will remember how, for three or four years after, he was frequently in the evening waited upon by ill-looking rascal, who solicited assistance; 'I was one of them, Sir,' he would say, 'who lost their work by the Anatomy Act.' One could scarcely refuse such an appeal, seeing how much we were indebted to the applicant."

In conclusion I will quote a poem which is given by Dr. W. W. Keen in his most interesting

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[1] Autobiographical Recollections of the Medical Profession, Medical Times and Gazette, March 11, 1871.

"Sketch of the Early History of Practical Anatomy." He takes it from Gibson's "Rambles in Europe." It lends, I think, an appropriate finish to our gruesome topic.

"THE INVISIBLE GIRL.

"'Twas in the middle of the night
"To sleep young William tried;
"When Mary's ghost came stealing in
"And stood at his bedside.

"Oh, William, dear! Oh, William, dear!
"My rest eternal ceases;
"Alas! My everlasting peace
"Is broken into pieces.

"I thought the last of all my cares
"Would end with my last minute,
"But when I went to my last home,
"I didn't long stay in it.

"The body snatchers, they have come
"And made a snatch at me;
"It's very hard them kind of men
"Can't let a body be.

"You thought that I was buried deep,
"Quite Christian-like and chary;
"But from her grave in Mary-le-bone,
"They've come and boned your Mary.

"The arm that used to take your arm
"Is took to Dr. Vyse;
"And both my legs are gone to walk
"The hospital at Guy's.

"I vowed that you should take my hand,
"But fate gave us denial;
"You'll find it there at Dr. Bell's
"In spirits and a phial.

"As for my feet, my little feet,
"You used to call so pretty,
"There's one, I know, in Bedford Row,
"The t'other's in the city.

"I can't tell where my head is gone,
"But Dr. Carpus can;
"As for my trunk, it's all packed up
"To go by Pickford's van

"I wish you'd go to Mr. P.
"And save me such a ride;
"I don't half like the outside place
"They've took for my inside.

"The cock, it crows, I must be gone;
"My William, we must part;
"But I'll be your's in death, although
"Sir Astley has my heart.

"Don't go to weep upon my grave,
"And think that there I be;
"They haven't left an atom there
"Of my anatomy."

Smoke Nuisance in New York City.—Volumes of black smoke from soft coal may be seen issuing from all the large buildings in New York City, so much so that the condition is becoming intolerable.

MEDICAL PROGRESS.

EYE, EAR, NOSE AND THROAT.

Epistaxis.—As a curiosity in the treatment of this scarcely uncommon condition the following is offered by G. H. McKenzie (Lancet, May 10, 1902): The patient was a man forty-nine years of age, rather alcoholic, and slightly albuminuric. On examination the right nostril showed the seat of bleeding to be on the anterior third of the septum half an inch above the floor. Under cocaine it was freely cauterized with a galvanocautery and a mass of cotton soaked in adrenalin chloride was inserted. On the following day the bleeding recurred and the treatment was repeated in the same manner over a larger area of the nose. While this was being done the patient became unconscious and had a convulsion. He was placed in bed and the hemorrhage again recurred and was more profuse than ever. The patient continued to bleed very freely for the next twenty-four hours, with the result that his condition became extremely serious and he was removed to the hospital. Further treatment locally proved unsuccessful, and the next day under chloroform, the whole mucous membrane of the septum on that side was scraped away. Very profuse bleeding accompanied this procedure, but it soon ceased. The night of the following day (thirty-four hours after the curetting) the patient bled again moderately and a day and a half after this he had another slight bleeding, which appeared to come from the roof of the nose near the septum from an area still covered with mucous membrane. From that day until the present time no further bleeding has occurred in this patient. So far as the author knows, this is the first case of severe nose-bleed treated by curetting.

Amaurosis (Atrophy of the Optic Nerve) and Its Treatment by Subcutaneous Injections of Strychnine.—The use of strychnine in amblyopia and amaurosis dates back to the early part of the nineteenth century. In 1872 Nagel published a monograph on the local subcutaneous injection of strychnine in optic-nerve atrophy. The method of Nagel has to-day but few adherents in this country. Noyes mentions it; De Schweinitz recommends it; Norris and Oliver do not even refer to it. The strychnine treatment was carried out in 26 cases by Hasket Derby (Boston Med. & Surg. Jour., May 15, 1902). In 15 of these no effect was produced and the disease progressed to blindness. But in 8 cases the result was fairly encouraging. Derby presents an account of these cases and urges the necessity of adopting any method of treatment which offers the smallest chance of relief in so desperate a malady. He believes (1) that strychnine is a stimulant to the optic nerve, which even in normal eyes temporarily increases the acuteness of vision and widens the visual field; (2) that in certain cases of optic-nerve atrophy the local subcutaneous injection of strychnine has coincided with an arrest of the progress of the disease, and has been followed by a somewhat increased acuteness of vision; (3) that in a progressive case it is one's duty to state the facts to the patient and allow him to take the treatment if he be so inclined; (4) that the strychnine should be administered in the temple by subcutaneous injection.

Treatment of Granular Pharyngitis.—For the treatment of cases of granular pharyngitis which demand operation, two new forms of throat scissors have been devised by M. Halle (Berl. klin. Woch., Apl. 28, 1902). By means of these instruments diseased mucous membrane in any part of the pharynx can be reached and denuded to any desired depth. Hemorrhage usually gives no trouble in these cases and local anesthesia is readily obtained by means of cocaine solutions. The advantages claimed for this method are rapidity of treatment, lack of pain and of trouble to the patient, absence of danger, minimum interference with the taking of nourishment, absence of constitutional reaction. In comparison with the scar produced by the galvanocautery, Halle's method leaves a scar which is smaller, less troublesome, and which never requires secondary operative treatment. The field for useful galvanocautery in the pharynx is thus distinctly diminished. It may still be wisely employed for pharyngeal venestasia.

Resection of the Cervical Sympathetic in Glaucoma.—The treatment of glaucoma has been very unsatisfactory so far as therapeutic measures are concerned, and hence it was with a great deal of pleasure that an operation was welcomed into the methods of treatment. The statistics are still of somewhat uncertain value for many of the cases in which improvement has been very marked will probably prove to be but temporarily relieved. W. B. Marple (Med. Rec., May 10, 1902) has reviewed most of the cases in which operation has been done for the relief of glaucoma and has found eighty-six cases in all. Only about thirteen of these cases, however, had been followed sufficiently long to form any basis for deductions. None of these were made worse; one was unchanged, and the remainder were improved, five of the latter subsequently suffering relapses. Experience seems to show that the operation is a safe procedure in the hands of a skilful surgeon and apparently never does any harm. The results have been so varied that one cannot yet be sure in what cases it can be advantageously employed. It does not replace iridectomy, but may possibly supplement the latter in case this is refused or has already resulted disastrously in the other eye, or is contraindicated, as in hemorrhagic glaucoma, dacryocystitis, etc.

Acetanilid and Otitis.—About two years ago it was determined by G. F. Libby that insufflations of acetanilid into the ear are valuable in purulent otitis media of chronic type in children: On this basis, U. Melzi (La Sem. Méd., 1902, No. 19) has treated 43 children suffering from this disease in the hospital for children in Milan in the department for ear and throat diseases, with particularly encouraging results. After the first treatment there is a decrease in the fetid odor of the secretion from the ear. Later the amount of the secretion decreases rapidly and soon a complete cure results. The progress is rapid even in cases in which other well-known remedies have failed. The use of this drug is well borne even by children of tender years. As to the method of making the insufflation, Melzi differs in some points from that described by Libby. The former attaches a great deal of importance to a preliminary clearing out of the auditory canal and employs for this purpose a series of stylets carrying cotton. These he sterilizes most carefully before introducing them into the ear. In order to mop out the cavity, if there be a large perforation of the tympanic membrane, Melzi washes the walls of the external auditory canal and those of the tympanum with a small cotton tampon soaked in peroxide of hydrogen. If the perforation be too narrow to permit penetration directly into the cavity of the tympanum, he fills the external auditory canal with diluted peroxide of hydrogen, plugs its mouth with cotton and then by gentle to-and-fro movements of the head seeks to cause a penetration of the fluid through the narrow opening into the tympanic cavity. He thinks that this method is considerably better than the use of Politzer's bag, which cannot be easily employed in small children without danger.

Affections of the Cornea and Eserine.—Several of the drugs in ordinary use affect the eye both by local and by systemic exhibition. Among these eserine is a well-known example, and it is frequently used locally in the treatment of affections of the cornea. According to a Russian oculist, R. A. Katz (La Sem. Méd., 1902, No. 17), it is available in decreasing the intra-ocular pressure and exercises a favorable influence, not only on suppurations of the cornea, which one ordinarily sees, but also upon keratitis without abscess, and in particular upon peripheral infiltrations of the membrane in question. It is thus that in three cases of keratitis he has obtained excellent results from a pomade containing 0.03 gram eserine to 8.0 grams of excipient. Atropine, which he used first, caused a distinct aggravation of the eye symptoms. In one of these cases the child was three years old and suffered from syphilitic keratitis. In this patient a pomade of yellow oxide of mercury had been successful. As a general rule Katz says that in treating inflammations of the cornea eserine should be preferred to atropine, except when iritis is certainly or probably present.

Ocular Tuberculosis.—The treatment of ocular tuberculosis by injections of air into the anterior chamber is a method which W. Koster (La Sem. Méd., 1902, No. 17) has employed with success in two cases of tuberculosis of the iris. For this purpose the author uses an ordinary Pravaz syringe which he partially fills with air filtered through sterilized cotton. After having driven the cannula through the anterior chamber he draws off the aqueous humor. Then he lowers the syringe in such a way that the fluid gathers in the lowest part of the instrument. It is then only necessary to push in the piston in order to make air penetrate the anterior chamber. In the first case, after three injections of air, the eye cleared up and the visual acuity returned to about one-half its normal. The other patient presented a gray tumor of the iris encroaching upon the anterior chamber and resisting all the methods of treatment usually employed for similar conditions. These injections of air were sufficient to bring about a progressive diminution and finally disappearance of the neoplasm. Koster has used this method with equal success in parenchymatous keratitis, with tubercles on the conjunctiva of the ball, which lesions were unaffected by the usual treatment. Four injections of air were followed by a complete cure.

A New Operation for Conical Cornea.—While conical deformity of the cornea is comparatively rare, its importance is derived from the fact that it usually affects individuals during the active, working period of life and seriously impairs eye-sight and working capacity. According to J. Hirschberg (Berl. klin. Woch., May 19, 1902) the operation of iridodectomy, originally proposed by Von Graefe, and that of iridodesis, described by Bowman, will not sufficiently restore vision. Hirschberg claims to have obtained excellent results by means of a modification of Von Graefe's later operation, which relies on cicatricial contraction of the vertex of the protrusion following cautery. As performed by Hirschberg the operative procedure is as follows: The cauterizing olive, at dull red-heat, is applied to the apex of the cone for a moment, producing a loss of tissue 1.5 mm. in thickness. At intervals of ten days the same spot is repeatedly cauterized in the same manner, say four times in all; the later burnings are very light and superficial. For the first cautery, the apex, which ordinarily does not occupy the exact center of the cornea, must be accurately located with the aid of a keratoscope; afterward the cauterized point is easily seen. Perforation must be carefully avoided. The resulting cicatrix is eventually blackened by tattooing. The fact that the point operated upon is not precisely in the middle of the cornea is favorable to the later vision of the patient. This method of cauterizing the affected cornea results in a flattening of the conical area and materially improves the patient's eye-sight. Hirschberg has repeatedly caused by this method an enhancement of vision from $^{1}/_{10}$ to $^{1}/_{5}$, and has never seen an untoward result.

Angiosarcoma of the Nasal Septum.—This subject is summed up by J. NARDI (Archiv. Ital. d. Laringol., Year XXII., fasc. 2, 1902) as follows: (1) Nasal sarcoma is of moderately frequent occurrence, and is more often found than epithelioma or carcinoma; histopathologically it varies greatly, and its site of predilection is the septum. (2) It rarely develops as such, but most frequently represents a metamorphosis of a benign connective-tissue tumor, due probably to repeated traumatism and to the inflammations to which this region is subject. (3) Histological diagnosis, while not entirely exact, is based upon multiplication of connective tissue cells and their special grouping. (4) Errors in clinical diagnosis frequently occur, these neoplasms often remaining localized, especially when they represent a metamorphosis of a preexisting connective-tissue tumor. (5) Ready bleeding, a wide base of attachment, and irregular ulcerated surface should put the physician on guard and suggest prompt surgical intervention. (6) Absence of recurrence, even when operation has not been very extensive, does not render the histological diagnosis doubtful, but rather indicates that the tumor has been extirpated before invasion of sarcomatous cells has passed beyond the boundary between the healthy tissue and the preexisting benign neoplasia. (7) The sarcomatous variety of angioma is rare, and requires the exercise of great caution owing to the severe hemorrhage which is apt to occur during operation.

Monocular Blindness.—Transient loss of vision limited to one eye is very uncommon and but comparatively few cases have been recorded and described. A number of cases have been observed by W. C. POSEY (Jour. Am. Med. Assoc., May 31, 1902) in which the loss of sight in one eye was sudden and complete, without the accompaniment of general symptoms, and recovery rapid. The attacks may be repeated at intervals and although the ophthalmoscopic examination shows very little, the author believes a guarded prognosis should always be given. He has seen cases in which recovery was very slow and incomplete. It is impossible to predict whether the blindness be due to acute and transient spasm or to a forming embolus which finally shuts off the blood-supply, or even to a chronic spasm without visible change in the vessel walls. Recurrence should be prevented therefore by combating any tendency toward endarteritis. At the time of the attack nitrate of amyl is of value, together with gentle massage of the eye. Although iridectomy, by causing a dilatation of the blood-vessels, reduces intra-ocular pressure, the author does not recommend subjecting an eye which may remain permanently healthy to an operation which in a certain number of instances, no matter how skilfully performed, renders the eye useless for visual purposes.

SKIN AND GENITO-URINARY.

Extra-Genital Chancre.—An unusual site for the primary lesion is reported by SCHNABEL (Deut. med. Woch., May 1, 1902) in a patient who had been bitten on the cheek. Some two weeks later a swelling appeared midway between the eye and ear having the characters of an indolent furuncle. The diagnosis could not be confirmed until the appearance of the secondary rash and mucous patches. The neighboring lymphatic glands were enlarged.

Tuberculous Diseases of the Skin and Their Relations with Internal Organs.—The relation between cutaneous diseases of a tuberculous character and the internal organs has been more or less disregarded. It has been shown that general tuberculosis may follow any kind of localized tuberculous affection, whether of the skin, bones, joints, intestines, glands, larynx or lungs. Such extension of a process originally purely local has been known to follow curettement in lupus vulgaris. O. VON PETERSON (Berl. klin. Woch., Apl. 21, 1902) emphasizes the need of more systematic study of these cases, for the purpose of determining the conditions under which systemic infection occurs. Tuberculous skin affections in themselves are essentially local, and treatment must be directed to the diseased area, but must also seek to enhance the individual's power of resistance. Von Peterson regards the following as tuberculous diseases of the skin: Lupus vulgaris, tuberculosis verrucosa cutis, tuberculosis miliaris acuta cutis and lichen scrophulosorum, the last two being symptomatic of general tuberculosis, the others purely local diseases. Of doubtful classification are acne cachecticorum and œdema indurativum (Bazin).

Acue and Sycosis Treated by the X-Ray.—Ten consecutive cases of intractable acne successfully treated by this method are reported by W. A. PUSEY (Jour. G.-U. and Cutan. Dis., May, 1902). In order to obtain conclusive proof, no other treatment, either external or internal, was administered. The indications to be met by the use of the X-rays are to cause atrophy of the dilated sebaceous follicles and to prevent pus-formation. The skin is left smooth, soft, and clean-looking. Care must be taken to use a soft tube with a weak current, the light sufficient to show a faint green glow. Treatment was stopped at the first sign of erythema or pigmentation, which evidences of the effect of the rays always marked the beginning of an improvement. A most successful result was also seen in a case of sycosis which had resisted all other forms of treatment. Exposures were given over a period of ten weeks until an acute dermatitis resulted, with rapid subsequent improvement. A complete alopecia now extends over the affected area, but the skin is smooth and healthy.

PATHOLOGY AND BACTERIOLOGY.

Antitoxic Functions of the Suprarenal Capsules.—An effort to determine the conditions under which the suprarenal bodies exercise their antitoxic power has been made by R. OPPENHEIM (Thèse, Paris, 1902). Suprarenal extract, if mixed with substances of a toxic nature or if injected into animals simultaneously with such toxic substances, increases in many instances the resisting power of the organism to intoxication. Results vary with different poisons. Almost no result is noticed when the poison is strychnine or atropine, but the antitoxic action is striking in the case of phosphorus or of the toxic substances contained in human urine. The author admits that unilateral decapsulation does not diminish organic resistance to intoxication; in fact, he believes that in diphtheritic infection and in phosphorus-poisoning, animals which have been partially decapsulated resist better than normal control animals. The explanation of this fact is to be found in the enormous hypertrophy and hyperactivity of the gland which is left in place when its fellow is removed. The symptom-complex of acute insufficiency of the suprarenal bodies has been observed from time to time in infants. Following such an attack lesions of these glands may remain latent, but may manifest themselves, when an intercurrent intoxication occurs, by the failure to destroy the poisons then introduced into the system. In the presence of diseased suprarenal bodies a common tonsillitis, for example, may become a rapidly-fatal disease, while in an otherwise normal individual a similar intoxication would have a benign course.

The House-fly as a Germ-carrier.—It has been quite conclusively proven during the last decade that the common house-fly is a means of transmission for various infectious intestinal diseases. J. MANNING (Jour. Am. Med. Assoc., May 17, 1902) shows that the fly is also a direct factor in the transmission of the micro-organisms of wound infection. Captive flies were allowed to crawl over dressings from infected wounds, over pus from a case of salpingitis, and over bronchitis sputum. They were then carefully transferred to culture-tubes and allowed to come in contact with the various media. During the experimentation 44 culture-tubes were subjected to fly infection; of this number 41 tubes showed colonization at the end of forty-eight hours, 3 tubes remaining apparently sterile. Pure cultures of the following were obtained: Bacillus pyocyaneus, staphylococcus pyogenes aureus, bacillus typhi abdominalis, bacillus coli communis, bacillus prodigiosus, sarcina aurantiaca, sarcina alba, molds and fungi.

The Vermiform Appendix as a Gland.—Some very interesting considerations are proposed by KILBOURNE (Phil. Med. Jour., May 17, 1902) for advancing this organ from its present position as a functionless structure and giving it a place among the recognized accessory glands. Embryologically, it is known that the salivary glands, liver, and pancreas are all formed from hypoblastic diverticula, which assume different forms in later life; the pancreas becomes a compound racemose gland, the liver takes on a lobulated structure, while the appendix becomes a lymphatic organ. But all are formed from the same epithelium and each duct is lined by mucous membrane continuous with that of the intestine. Anatomically the openings of the ducts from the pancreas, liver and appendix bear an interesting resemblance to each other. At their respective openings into the intestine there is a distinct change in the digestive process or of food absorption. The situation of the tonsils is slightly analogous, being at the gateway between the buccal cavity and the pharynx. The appendix is not really a miniature intestine, but histologically is a lymphatic structure and may be regarded as an inverted or involuted tonsil, and from its location and construction seems to bear the same relation to the pancreas as do the tonsils to the salivary glands. Physiologically, it may be feasible to suppose that the secretions from the appendix have an influence on cellulose digestion and contribute to the acidity of the contents of the large intestine instead of attributing that fact entirely to microbic fermentation. In addition to these, a more probable function is the protection afforded against the absorption of toxins from the colon, similar to the germicidal properties of the tonsils in the pharynx. Even when considered pathologically similarities are noticed toward the diseases of the recognized glands, the common forms of appendicitis being the acute obstructive, acute or chronic catarrhal, which approximate closely such conditions in the salivary glands, liver or pancreas. The author's purpose has been to advance the rating of the organ to an equal position held by the salivary glands and the tonsils. The importance of the organ must not be held so high, however, as to forbid surgical interference even in the recurrent cases of a mild type.

Treatment of Tuberculosis with Bacterial Products.—As a first attempt to employ bacteriotherapy in the treatment cure of consumption may be mentioned the inhalation of pure cultures of the bacterium thermis, based upon a supposed antagonism between this and the tubercle bacillus, as practised some seven years ago. It did not take long to convince physicians of the complete failure of this disagreeable method. A. R. VON WEISMAYR (Klin. therap. Woch., May 4, 1902) then mentions the employment of a certain streptothrix, of intramuscular injections of yeast and of certain ferments, all of which proved signal failures. It was only after the announcement of Koch's discovery of tuberculin that the world at large was set astir and it took some time before this was relegated to its restricted sphere of usefulness in the diagnosis of tuberculosis in cattle and, more rarely, in man, since, to quote one of the foremost clinicians, not a single case of cure and hardly one of improvement can be recorded and more than one death must be ascribed to it. The problem was no nearer solution when trials were made with the later preparations of Koch, the R. tuberculin and the O. tuberculin and for those few initial cases, free from fever, in which a trial seems justified, the old tuberculin is to be preferred, and it is best to begin with very small doses (0.1 mg.) and to increase them slowly every second day up to the first reaction. Only after this has disappeared should the treatment be again resumed with a smaller dose, since the susceptibility for the same dose increases. When finally the body no longer responds to large doses, the treatment should cease for several months or the doses should be gradually reduced. Of later similar preparations of other investigators only the tuberculocidin and the antiphthisin of Klebs demand consideration. Klebs found that tuberculin really contains two substances: One causing necrosis, fever and other disturbances, and residing in the bodies of the bacilli themselves, and another, a secretion of the bacilli which has a distinct curative effect. By treating tuberculin with alcohol and bismuth, the injurious substance is removed and the aforementioned remedies result. In addition, a third substance, typhase, is used which is prepared from typhoid bacilli in a similar way. The experiences are too few as yet to enable one to form a definite opinion. Turning now to antitoxins, the only serum which really has met with an extended trial is that of Maragliano, which is prepared in the same manner as is diphtheria antitoxin. Results which differ very widely have been reported, some authors being full of the highest praise, others, including the writer, having seen no cures whatsoever. The conclusions drawn are that only a positive, practical importance is to be ascribed to Koch's tuberculin, which, if used in proper cases and with proper precautions, forms a valuable addition to phthisiotherapy.

A Question in Gastric Pathology and Its Relation to Physico-chemical Laws.—The occurrence of alcoholic fermentation in the stomach in conditions of muscular atrophy or pyloric stenosis, was formerly attributed to the supposed refractory behavior of yeast toward weak solutions of acids, for it was known that such fermentation occurred in the presence of gastric juice containing HCl. Kuhn, however, showed the falsity of this explanation by demonstrating the absence of fermentation in a grape-sugar solution containing a considerable quantity of yeast and a percentage of HCl, even much less than that found in the stomach contents. M. BIAL (Berl. klin. Woch., May 19, 1902) undertakes to elucidate this problem. He declares that fermentation occurs on account of the presence of common salt, the latter having the power to deprive HCl of its disinfecting or antizymotic properties. The antizymotic strength of weak acid solutions is due to and proportional to the H-ions represented. The H-ions contained in acid solutions are diminished by the addition to such solutions of salts of the acids. The diminution of H-ions involves a corresponding loss of antizymotic strength. In special cases the antiseptic power of the gastric HCl depends upon the H-ions present; in such cases the addition of sodium chloride to the gastric contents favors fermentation due to yeast.

Origin of Angina Pectoris.—The clinical histories and histological studies of heart and aorta in several cases are given by U. BENENATI (La Riforma Medica, May 3, 5, 6 and 7, 1902), as illustrating his idea of the neurotic origin of angina pectoris from syphilitic aortitis. Characteristic findings were: Lesions of the aortic plexus; hyperemia of the myocardium; no change in the coronary arteries; diffuse arteritis of the aortic vasa vasorum, and of the vasa nervorum; vacuolation of the ganglion cells. The writer concludes that while, in general, the vascular origin of angina pectoris cannot be denied, cases occur which undoubtedly are due to lesions of the aortic or coronary plexus, and the cases cited are thought to justify the belief that in syphilitic angina pectoris, in which a coronary stenocardia might be considered probable, there exist changes in the aortic plexus and in the nerves of the heart. This alteration of aortic or cardiac plexus may be in the nature of a neuritis, or may be due to changes in the vessels of the nerves, the functional effects of which would be equivalent to a lesion of the nerve proper. Such changes in the nerves or vasa nervorum are caused by a terminal obliterating endarteritis, pericellular infiltration, or embryonic gummata which irritate the vessels. These changes can, in the large majority of cases, be controlled by energetic specific treatment; hence the importance of early etiological diagnosis.

Histology of the Fallopian Tubes in Pregnancy.—The participation of the tubes in the changes occurring in the uterus during gestation has been an open question. P. FIORI (La Riforma Medica, Apr. 3, 1902) examined the tubes of rabbits pregnant eight to twenty-four days and found increased vascularity, but absence of general thickening of the walls. Certain changes were observed, however, in the isthmus and uterine portion; notably, a thickening of the external longitudinal muscular coat and the underlying connective tissue; the circular and internal longitudinal muscle fibers sharing in this hypertrophy to some extent. The absence of epithelial cilia recorded by Janot was not confirmed in these observations. This, the author believes, may be due to difference in species, Janot's findings being derived from examination of the human tube.

Bone-marrow in Infectious Disease.—The investigations of E. FRANKEL (Münch med. Woch., Apr, 8, 1902) makes it seem extremely probable that in a number of infectious diseases specific protective substances are formed and stored in the bone-marrow, for he found the microbes causing the diseases lodged there generally in large numbers. The red bone marrow of the vertebræ gave most positive findings; though the marrow of the ribs histologically is of the same structure, it was less often infected. There was no direct relationship between the number of bacteria in the blood and the marrow: there may be many in one and few in the other. Even in local infections, such as a peritonitis, phlegmons, putrid bronchitis, and otitis media, staphylo- and streptococci were often found. The anatomical changes in the marrow amounted to hemorrhages, pigmentation, fibrinous exudation, and necrosis.

Influence of Antipyretics on Agglutination.—By its agglutinating power, the blood of typhoid-fever patients possesses a strong weapon against the invading bacilli. M. BENIASCH (Zeitsch. f. klin. Med., Vol. 45, Nos. 1 and 2) conducted a series of experiments to determine whether the systematic use of antipyretics in any way influences this power. No changes were seen after small, continued doses of quinine or phenacetin which produced a slightly lower temperature, or after occasional large doses which led to transient, steep falls. After pyramidon, the safest and most efficient antipyretic in continuous fevers, on the whole a slight increase in the agglutination took place, which must be ascribed, not so much to a direct action as to a general improved state of the organism leading to a more favorable condition for the production of agglutinins. The view that the fever is a manifestation of the self-defence of the organism and should not receive treatment is therefore not shared by the author.

Identity of the Bacillus of Ozena and of Rhinoscleroma.—For a number of years it was thought that the specific cause of both ozena and rhinoscleroma had been discovered in the form of a bacillus bearing close resemblance to the Friedländer bacillus. Since the opinion that all three organisms are identical has been gaining more and more ground, F. KLEMPERER and M. SCHEIER (Zeitsch. f. klin. Med., Vol. 45, Nos. 1 and 2) have again covered the field with the result that no biological or morphological difference could be detected. Undoubted proof, however, that they were dealing with one and the same germ, they obtained from animal experiments and agglutination tests. They believe that in ozena and scleroma the Friedländer bacillus merely finds favorable conditions for active proliferation, but that it plays no part in the etiology of either disorders.

The Blood in Typhoid and Malaria.—It is always to be conceded that, while Widal's test is unquestionably of the very greatest value in differentiating these too-frequently-misunderstood conditions, there are many situations in which its employment is practically prohibited because of its involved technic. LEONARD ROGERS (British Med. Jour., Apr. 5, 1902) rightly says that any test which will be as reliable as Widal's and which will not demand such complicated facilities will be most welcome. With this end in view he has carried out a series of observations on some fifty cases of continued and remittent fevers among both Europeans and natives in the hospitals of Calcutta. There is a supposition which holds that natives are to a great extent immune to typhoid, but this is not the case. The investigation of these bloods led Rogers to the following conclusions: (1) The percentage of the different forms of leucocytes counted in a stained blood-film is of great diagnostic value in differentiating typhoid and malarial remittent fevers and is easily ascertained. (2) An increase of the lymphocytes to 40 per cent. or over, without any increase in the large mononuclears, points to typhoid as against malarial fever. (3) An increase in the large mononuclears to about 12 per cent. and upward, especially during the remissions of the temperature, strongly indicates malaria as against typhoid fever. This change is of great value when parasites are absent from the blood. (4) The presence of myelocytes in any number, such as from 1 to 5 per cent., points to malaria as against typhoid fever. (5) A high degree of anemia, such as a reduction of the red corpuscles to below 3,000,000 per c. mm., is much more frequently met with in malarial than in typhoid fever. (6) A very great reduction in the total leucocyte-count, such as to below 2,000 per c. mm., is much more frequently met with in malarial than in typhoid fever, while the proportion of white to red corpuscles in malaria is not frequently less than 1 to 2,000, which is rare in typhoid fever. (7) Leucocytosis can be detected by the presence of a great excess of white corpuscles, upward of 80 per cent. of which are polynuclears, in a stained blood-film, and is often of service in excluding malaria in intermittent fever due to liver abscess or other local inflammations.

Presence and Formation of Agglutinins.—There is no field in the length and breadth of all medicine in which as great progress is being made as in that which was brought under the first thorough-going medical plough by Widal of Vienna. M. ARMAND RUFFER and M. CRENDIROPOULO (Brit. Med. Jour., Apr. 5, 1902) have made a series of experiments in the Port Vieux Laboratory, Alexandria, Egypt, to determine whether agglutinins are formed in the normal constituents of the blood. Although a great deal of previous research has been done in the very natural effort to find the ultimate source of these bodies, no one prior to the present researches has given any special attention to the possibility of their springing from the corpuscles. It has long been known that, although the lymph in pericardial and pleuritic effusions and even in edematous exudates is rich in these peculiar bodies, they are found in overwhelmingly large proportion in the circulating blood. Their source has been searched for in the inflammatory fluid found at the point where a given microbe has been inoculated. Pfeiffer and Marx observed that agglutinins were formed early in the lymphatic system, in the osteomyelium, and especially in the spleen. The Egyptian observers first worked out systematically the agglutinating power on several microbes of the white and red blood-corpuscles of non-immunized animals. They then turned their attention to the action of the same constituents after the animals had been immunized. Their conclusions are as follows: (1) The cultures of a microbe freed from that microbe by filtration, dialysis, or centrifugalization, have a distinct, though feeble, agglutinating effect on that particular microbe. The age of the culture and the constitution of the medium are important factors in determining the quality of agglutinins present in such cultures. (2) The red blood-corpuscles of non-immunized and of immunized animals contain no trace of agglutinins. (3) The polynuclear leucocytes of non-immunized animals always possess an agglutinating power greater than, or, more rarely, equal to, that of the serum. They may therefore be rightly considered as the producers, or at any rate the carriers, of the agglutinins. (4) In immunized animals the specific agglutinins appear in the polynuclear leucocytes and are therefore probably formed in them. The quality of agglutinins begins to increase thirty to forty-eight hours after the injections, and goes on increasing up to the tenth day or thereabout. They then pass into the serum, the agglutinating power of which increases correspondingly. (5) The formation of specific agglutinins in polynuclear leucocytes and in the serum is preceded and accompanied during the first three or four days after the inoculation of a given microbe by an increase of agglutinins for other microbes. This latter increase is of short duration and stops suddenly, whereas the increase of specific agglutinins persists for a much longer time.

The Final Distribution of the Outer Lemniscus.—This question has long remained an unsolved problem. A contribution to the subject has lately been made by RAMON Y CAYAL (Deut. med. Woch., Apr. 17, 1902) who from a study of the brains of young mice and rabbits has traced and verified the course of the acoustic tracts and of a particular bundle of fibers which are incorporated in the brachium. The observations made point to a well-marked parallelism between the arrangement of the acoustic and optic nerve tracts. Both present a division of their third neurous into two great tracts, (1) a reflex path which ends in the corresponding one of the corpora quadrigemina, and (2) a sensory tract which after incorporation with the internal geniculate body, ascends by means of a fourth neuron. The author believes from his studies that the Gudden's commissure probably consists of two paths or acoustic commissures, one present between the two internal geniculate bodies, the other spread out between the posterior corpora quadrigemina. If these facts be further verified, they will point to a close correspondence between the acoustic and olfactory centers, the double commissure of the latter having already been proven.

Cytodiagnosis of Tuberculous Exudates.—A proposition has lately been advanced by Widal and Ravant that certain lymphocyte-cells described by them in various exudates could be considered pathognomonic of tuberculosis. This idea is refuted by V. PATELLA (Deut. med. Woch., Apr. 17, 1902) who finds that these cells have nothing in common with the lymphocytes of the blood, but are derived from the endothelial cells of the lining membrane of the cavity from which the exudate is derived. If successive examinations of a pleural exudate be made during its development, various changes in the cytoplasm of the endothelial cells can be noted until it disappears entirely and the nucleus is free. The latter also undergoes changes and forms the so-called "lymphocytes," with the complete or partial loss of the investing cytoplasm. The author has succeeded in finding all these intermediate stages in many cases of pleural, peritoneal, and pericardial exudates, a number of which were proved at autopsy to be free from tuberculosis. He considers this method of cytodiagnosis of no value in the determination of tuberculous processes.

MEDICINE.

Hypnotism in the Treatment of Morphine Habit.—The cure of this demoralizing habit is so difficult in many cases that any useful aid in mastering it is always gladly received. S. A. AGATSTON (N. Y. Med. Jour., May 17, 1902) attempted the cure of this habit in one case in which twenty-five grains of morphine were being taken daily. The nausea, vomiting, diarrhea, colic, insomnia, and restlessness nearly unsettled the patient's mind and substitute drugs were unavailing. Hypnotism was attempted and several hours of sound sleep were obtained on the first night. The patient was hypnotized each night thereafter and the rest which she thus obtained gave her the necessary strength to resist the habit.

Adrenal Extract and Pneumonia.—Having had occasion to prove the efficacy of adrenal extract in a case of hemoptysis of grave degree, E. A. GRAY (La Sem. Méd., 1902, No. 17) conceived the idea of using the same remedy in two old men, one of whom was suffering from a left pneumonia during an acute nephritis secondary to diabetes, and the other presented a pleurisy with effusion and a fluid expectoration. In these two patients the treatment resulted in a fall of temperature and perceptible diminution in the number of heart beats and at the same time a rapid decrease in all the symptoms from the lungs. Since then this observer has successfully used adrenal extract, in doses of from 0.10 to 0.20 grams, every two or three hours during the day, in a number of cases of pneumonia. The remedy seems to act as a heart stimulant and is therefore especially indicated when this organ is weak, thus combating any failure of the pulmonary circulation. It is also well to use it in other affections of the lung. He found it serviceable in asthma complicated with albuminuria in a man sixty-eight years old. Under it the pulse, which had been 100 per minute, came down to 82, and the expectoration of blood ceased completely at the end of a few hours and the albuminuria itself disappeared a few days later.

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"CROSS VERSUS CADUCEUS."

THE "uniform board" of the United States Army now in session has, it seems, come to two conclusions in regard to the uniform and insignia of the medical staff in general and the hospital corps in particular, and according to an advanced rumor, that has broken through the red tape of official secrecy, the time-honored and medicinally-associated green is to give place to maroon in the trimmings of the uniform and the battle-scarred Geneva cross is to be supplanted by the caduceus, or winged rod of Mercury, as the symbol of the corps.

Green they have determined is not, as a color, desirable and smacks rather of the rifle than the hospital, and as some sanguinary hue has been adopted as indicative of medicine by almost all the European powers, maroon may be well selected by us, on the general principle perhaps that the color is immaterial, provided only that it is red. But that the cross of Geneva should be discarded or replaced by anything, no matter how classical, would be deplored by every right-thinking mind, not only in the medical profession but out of it, not alone in this country, but abroad; whereever the honors of the battle-field have demonstrated that it is the emblem of *humanity* and that under its shadow alone can succor be found for the wounded and protection for the dying. For since its adoption by the Congress at Geneva it has been recognized, revered, and kept inviolate by all the civilized races on earth and the abandonment of it by the United States at such an imperial epoch as this would be more than ill-advised.

We grant, as its supporters claim, that the caduceus may be "classical," but what if the rod does mean power, if the wings denote intelligence and activity, and the serpent indicates wisdom? All these may be desirable attributes for the surgeon, but surely they are as essential to any other branch of the service and are in no way pathognomonic of it. No one would dream of sending Sisters of Charity, whose garb and traditional bonnets have been hallowed for ages, to nurse in service hospitals, in the fillets of the Roman Empire, or clothe the trained nurse in classic Grecian robes. Why, then, should we strip the "red cross" with all its sanctity of the past, and its perfectly assured position for the future, from the arms of the men who have made it known and respected the wide world over? Verily, peace hath its victories, as well as war.

CONCERNING CANCROIN.

IF the six cases of cancer which Prof. Adamkiewicz describes in a recent issue of the *Berliner klinische Wochenschrift* (No. 24, 1902) were six cases out of six and not six cases out of sixty, we could wholly sympathize with the triumphant note which characterizes this striking, not to say sensational, report. Adamkiewicz's object in submitting the report in question is not so much to furnish renewed evidence of the therapeutic value of his serum, "cancroin," as "to furnish a broader and firmer clinical foundation for this important acquisition, and above all to show that the theory of the parasitic nature of cancer," upon which the cancroin treatment is based, "wins its greatest victories at the bedside."

The series of cases which Adamkiewicz now reports includes one of cancer of the tongue, one each of cancer of the larynx, the esophagus and the stomach, and two cases in which the disease affected chiefly the mammary glands. In each of the cases brilliant success appears to have attended the use of cancroin. But we repeat the query, Are these the only cases in which cancroin has recently been tested by its distinguished sponsor, or are there others, not included in the report? It is not that we are not duly impressed with the facts recorded in connection with these cases; but a bare recital of the histories of six successful treatments leaves the reader strangely unsatisfied. There is a restless longing for something more. One is so accustomed to setbacks in experimental therapeutics, so used to argument and rejoinder, so affected by the serious struggles of rival theories in various branches of medicine, that a smooth, easy victory such as this over the great giant, cancer, seems either a miracle or an unfinished story.

In one instance a tumor of the tongue of three years' standing shrank visibly after the first few injections of the Adamkiewicz serum. In another instance an exhausted sufferer from cancer of the esophagus, who had long been nourished through a gastric fistula, "began within a week to breathe freely and deeply for the first time since the beginning of her illness; diarrhea ceased and the stools became normal; the vomited masses changed their character completely and now consisted of a transparent and odorless mucoid material" in place of the foul-smelling matter of earlier days. Within five days from the beginning of treatment, Adamkiewicz declares, the involution of this rapidly-developing and four-months-old cancer had begun. On the 24th of April, six weeks after the case was first seen by the discoverer of cancroin, the latter received a touching letter of gratitude, expressing "in words of deep emotion the thanks of the ten small children of the convalescent for the rescue of their young mother." Adamkiewicz declines to accept much gratitude for himself—the letter was signed by every one of the ten small children —and with becoming modesty "lays these thanks at the feet of Science."

"LOCUSTS AND WILD HONEY."

If a little knowledge be a dangerous thing a total absence of it is fatal, particularly when it is associated with an excess of sentiment that is religious in its conception and fanatic in its execution, and a more striking example of the union of the two than is offered in the account of the locust poisoning in the wilds of Virginia is difficult to imagine. It would seem from the local reports that the daughters of Eloi and the widows of Asher, together with several other colored societies of an equally orthodox and biblical nomenclature, had united in a love feast with a bush meeting attachment, the principal attraction of which was to be a literal following out of the scriptures, inasmuch as, like St. John in the wilderness, their "meat" was to be "locusts and wild honey."

As to the success of the meeting, taken from a revival standpoint, little mention is made beyond the fact that the leading brother preached a most eloquent discourse from the text "to eat the locust after its kind" (Lev. xi., 22), but the real manufacture of history seems to have begun on the following morning, when all who had partaken of the *piéce de résistance* found themselves seized with a most acute malady, accompanied by cramps and spasmodic pains, which evidently belonged to the same category as that described by the late Col. Starbottle as "cholera-ic" in its nature (for the daughters of Eloi were in cloistered seclusion, "and the widows of Asher were loud in their wail").

That such an epidemic as this should attack such a camp as that, where the godliness, even if exalted, was next to anything but clealiness, is not surprising, particularly when we remember that all their food that was not in the frying-pan was literally out of it and in the fire, and that saleratus with its melancholy had long marked them for her own, so that under ordinary circumstances perhaps but little notice would have been paid to it, but in this particular instance different interests were at stake; the religious element desiring that some cause besides divine wrath should become visible in what might otherwise might be taken as a visitation to the faithful, while the farmers and upper classes were in alarm, lest their stock which had been jubilantly and economically fattening on the myriads of insects might sicken and die. A thorough investigation was therefore started in the interests of both parties.

It was seen by the more intelligent from the beginning that the locust itself had, in all probability, but little to do with the epidemic, for it has been known from the earliest days of historians and travellers that they have been a staple article of consumption in many countries, and, though it is difficult to understand how any race of people could be so destitute of ordinary food and the means of obtaining it as to resort to an insect-diet, yet the fact remains that many nations for many years have subsisted on them. Thus we have learned that in Persia, Arabia, Syria, Egypt, Bombay and even in some of the southern countries of Europe locusts have been, and still are eaten, and that the different ways of preparing them for the table are as varied as the localities they infest.

In some places they are fried until their wings drop off and are in that state sold in the markets, to be afterwards eaten with rice and dates. In others they are broiled or baked in earthen pans, and are often found salted in Arabian shows. In Morocco they are ground in hand mills and made into cakes, while the Hottentots make a brown soup of them, of which they are said to be extravagantly fond. When fried they turn a reddish color like shrimps and are supposed to resemble crayfish in taste, but while wholesome and tolerably palatable, they are not very nutritious, nor are they capable, unaided, of sustaining the vigor of the constitution, as the nations that feed on them habitually, as did the Acridophagi, or locust eaters of Ethiopia, become at last very thin, weak and indolent. Still at no time does there appear to have been any record of an acute outbreak of this nature occasioned by their use.

As to the stock owners and farmers, it seems, although the Calmucks do not eat the locusts, that they consider the antelopes, sheep and other animals that have fattened on them a particular delicacy and regard them as we do the acorn-fed hogs of Virginia, the rice-birds of the Carolinas, and that pungent product of the Spanish fly, the "pepper bot" of Louisiana.

All this would seem to remove the locust from being a *particeps criminis* of the village tragedy, a verdict fully confirmed by the discovery that the locusts had been boiled alive in an exceedingly dirty and crowded metal caldron, so that the trouble was brewed rather from the sounding brass of the encompassing kettle than from the tinkling cymbals of its contents.

ECHOES AND NEWS.

NEW YORK.

National Association Pension Examiners.—At Saratoga Springs, N. Y., on June 9th, was organized the National Association of United States Pension Examining Surgeons. On account of the large number of these surgeons and the peculiarities of their work, the desirability of such an organization has been felt for some time, and several suggestions have been made with this end in view, but no substantial progress was made until the meeting at Saratoga Springs. This was successful in every way. A large number of enthusiastic examining surgeons were present, a permanent organization was effected, and officers were elected for the coming year. Several interesting papers were presented and, by special invitation, Dr. J. F. Raub, Medical Referee, favored the Association with a paper, full of invaluable suggestions concerning the work of the pension examining surgeons. The officers elected for the ensuing year are: President, Wm. A. Howe, M.D., Phelps, N. Y.; Vice-Presidents, Wm. H. Hall, M.D., Saratoga Springs, N. Y.; Cyrus L. Stevens, M.D., Athens, Pa.; Charles James Fox, M.D., Willimantic, Conn.; G. Law, M.D., Greeley, Col.; Secretary, Wheelock Rider, M.D., Rochester, N. Y.; Treasurer, Charles H. Glidden, M.D., Little Falls, N. Y. The Executive Committee is made up as follows: The President, *ex officio*, F. W. Firmin, M.D., Findlay, Ohio; John Van Rensselaer, M.D., Washington, D. C.; J. Sutcliffe Hill, M.D., Bellows Falls, Vt.; Warren E. Anderson, M.D., Pensacola, Fla.; Henry Allers, M.D., Newark, N. J.; J. H. Maxwell, M.D., Newton, Ill.; G. Lane Taneyhill, M.D., Baltimore, Md.; and Joseph E. Jones, M.D., De Soto, Mo.

The Training of Foundlings.—Homer Folks, Commissioner of Charities, addressed the Summer School in Philanthropic Work last week on the care of neglected, destitute and delinquent children. He expressed belief in institutional care for older children and in boarding out younger children. This question involves 35,000 children in New York institutions alone, 100,000 in institutions in the United States, and 50,000 additional children living with families, or a national total of 150,000 cared for in one way or the other. According to the *Sun* he said that: "If an orphan boy of seven or eight years is brought to the Charities Building and taken to the first floor, he will have a very different career than if he happened to be taken to the fifth floor. If he is received by the Children's Aid Society, on the first floor, he will be sent to the Farm School in Westchester County and forwarded with a dozen or fifteen others to Texas or Iowa. There he will be placed on a farm seven or eight miles from a town, to grow up and develop much as other farmers' boys do and perhaps in the end own a forty-acre farm of his own. If he is received at the office of the New York Orphan Asylum on the fifth floor, he will be sent to their big institution at Seventy-fourth street and Riverside Drive, overlooking the Hudson, where with 200 others he will be brought up until he is 14 in an area of three or four blocks, and then indentured to some business in the city. He will always be a city boy, starting far down on the ladder, with possibilities for rising, but with keener competition and without the home life of the other boy. It seems hardly creditable that after an existence of fifty or one hundred years of activity along these lines, much of the child's career should depend on the mere accident of application. There is very far from anything like an organization of children's charities. Physically, there is no question that in the case of very young children the advantages are wholly on the side of their care in families. Foundling hospitals show a mortality nothing less than frightful. Mentally, children under 6 or 7 years of age learn largely by imitation. Their development in a family is much more normal, rapid and all around. Little which ministers to the development of personality can be done in an institution before that age. For the intermediate period from 7 to 16 there is little to choose between the child which lives in a family and attends school and the child which is in an institution. When we deal with children from 14 to 17 there is often a distinct advantage in the more or less exceptional facilities of institutions for training. But I think there is oftentimes danger of offering too much training which cannot be had in the public schools, for that is more or less of a temptation to parents to commit their children. The great object of getting a child out in a home is to get it to grow up with a sense of locality, to model its own life after the standards of a particular group. The tendency is going to be to place out in families the younger children. I hope it will not be many years before we shall not think of sending them elsewhere."

PHILADELPHIA.

Milk Preservatives Must Not Be Used.—Acting on the suggestion of Chief Inspector of Milk Byrnes, the Board of Health has ordered the systematic examination of the milk supply of the city. There shall be reported to the Board the names of all persons selling milk containing any chemical preparation used as a preservative. The suggestion of examination and prosecutions were made because of the recent introduction of sodium benzoate as a milk preservative.

Contagious Diseases in Camden.—The annual report of the Camden Board of Health shows that during the year ending July 1st, there were 512 cases of contagious diseases with 111 deaths. Of these cases 194 were smallpox. The preceding year there were 674 cases and 130 deaths with but 2 of smallpox. Dr. S. G. Bushey has been elected president of the Board.

Hypnotist In Danger of Drowning.—W. W. Kretz, the hypnotist of Reading, who has allowed himself to be buried twice while in a hypnotic trance barely escaped drowning each time as a result of heavy rains. He announces his intention of repeating the experiment, saying that his watchers were needlessly alarmed.

Woman's Hospital.—Dr. Alice Seabrooke, for many years directress of the Nurses' Training School of the Methodist Hospital has resigned and accepted the position of superintendent of the Woman's Medical College Hospital.

Population of House of Correction Decreasing.—Statistics show that the population of the House of Correction has been steadily decreasing since 1897. In that year it was 1,286 as against 962 last year. Prosperous trade conditions and the stricter discipline maintained in the institution are believed to be the main factors in cutting down the number of inmates. The inmates, whether men or women, are now required to do such work as they are able and the institution will permit. The ending eighteen months ago of the practice of permitting relatives and friends to visit inmates also is believed to have had the effect of making the place less attractive. On the per capita basis, the daily cost was 36.87 cents as compared with 33.71 cents in 1897.

Status of the Jew in Europe and America.—At the annual meeting of the Association of Jewish Immigrants held June 26, President Levy read a report showing the present condition of Jews throughout the world. The report dealt largely with the present deplorable condition of the Jew in Roumania. It was shown that while the general immigration to this country has been increasing during the past eighteen months, the Jewish contingent has greatly decreased, not only proportionately, but absolutely as well. Locally the same condition is traceable. For the year ending October 1, 1901, the number of Jewish immigrants at this port was 2,253 as against 3,870 for the preceding year.

CHICAGO.

Raising Money for a Hospital.—By securing the necessary subscriptions to fill out the sum of $10,600, the directors of the Chicago Lying-In Hospital will receive an endowment of $5,000 from Abraham Slimmer, of Iowa, who has sold his property and is giving his large estate to charity. Of the required sum over $7,000 already has been raised. An anonymous contributor has given $1,000, and similar amounts have been contributed by F. A. Delano, General Superintendent of the Chicago, Burlington and Quincy Railroad, and President of the Directors of the Hospital, and by Mrs. Otto L. Schmidt. With the $15,000 a dispensary will be built, and the movement to put Chicago on an equal footing with other great cities in this branch of medical work will be well started. When sufficient funds have been secured, the directors will establish at least three dispensaries, probably one on Goose Island, one in the stockyard district, and one in the Ghetto. In presenting the cause of the hospital to its friends, the directors have reported that in the last four years 2,192 cases have been attended in homes, without a death. Through its dispensary system, the hospital is able to attend cases at a cost of $5.00. A single membership fee of $10.00 makes possible the care of two mothers and their babies.

Directors of the Institution.—The Board of Directors and the staff of the hospital is composed as follows: Frederick A. Delano, Charles D. Norton, Benjamin R. Cahn, Rockwell King, Russell Tyson, and Arthur Meeker. Medical Directors, Drs. Joseph B. De Lee, Frank B. Earle, and J. Clarence Webster. Associate Obstetricians, Drs. Charles B. Reed and Rudolph W. Holmes. Assistant Obstetricians, Dr. Effa V. Davis and Dr. Rachelle S. Yarros. Consulting Physicians, Drs. Frank Billings, Henry T. Byford, E. C. Dudley, John B. Murphy, Sanger Brown, E. J. Doering, Henry B. Favill, Wm. E. Quine, and N. Senn.

Promotion of Dr. Jaques.—Dr. Wm. K. Jaques has been promoted from the position of chief administrator of antitoxin to that of superintendent of the municipal laboratory, to succeed Dr. Adolph Gehrmann, who has resigned. He has practised medicine for fifteen years, and has been conspicuously connected with the Health Department for six years. Dr. Jaques is also adjunct professor of practice of medicine in the College of Physicians and Surgeons, University of Illinois. During his service in connection with the Health Department, he has invented a special syringe for the use of antitoxin, a self-regulating incubator, and a culture medium box for the prompt diagnosis of diphtheria and other contagious diseases.

City Health Matters.—Notwithstanding the unfavorable character of the weather, according to the bulletin of the Health Department, June 28th, 1902, the June mortality will not be materially higher than that of June, 1901, the record year for healthfulness. During the week ended Saturday, the 28th ult., there were 397 deaths recorded, as compared with 450 during the previous week, and 423 during the corresponding week last year. The annual death-rates were respectively 11.31, 12.80, and 12.54 per one thousand of population, and for the month the rate will probably not exceed 12.90, as against 12.47 for June, 1901. These figures are a surprise to the Bureau of Vital Statistics, which has been noting with anxiety a range of 43 degrees in the temperature, with a maximum of 91 on the 12th, causing a fatal case of heat prostration, and a marked, though transient, effect on the death-rate of infants and young children. But the low temperature, chilling winds, and frequent rainfalls, while keeping the throat specialists busy, have had no such disastrous result on the general health as was feared. Catarrhal and bronchial affections are, however, quite prevalent, Derby day contributing largely thereto. Three deaths from tetanus occurred during the week, the first of the annual sacrifices to our barbarous method of celebrating Independence Day. Two of these followed wounds caused by the blank cartridges of toy pistols, and one from a gunshot. The victims were all boys between fourteen and seventeen years of age. The dates of the wounds and the deaths were June 15th, died June 23d; June 21st, died June 24th; June 10th, died June 26th. The Department repeats its comment on the gravity of Fourth-of-July wounds, the urgent necessity for prompt and thorough medical attention, and warns against closing such wounds until properly cleansed.

Smallpox.—The fourth death from smallpox since the first of the year occurred at the Isolation Hospital during the week. The victim was a negro, twenty-seven years of age, never vaccinated, and died of the confluent form of the disease—a most hideous spectacle. Seven new cases, two negroes, were removed to the hospital, making a total of 253 cases since January 1, 1902. Of these, 217 have been discharged recovered, four died, and 31 remain under treatment. The death-rate of the completed 221 cases is 1.81 per cent., which, considering the gravity of many of the cases, and that they were all unvaccinated, is a remarkably low figure.

Health Statistics.—A tabulation of the ages of 443,920 residents of Chicago who died between January 1, 1869, and December 31, 1898, enabled the Health Department in its April, 1899, bulletin to show that the duration of human life in this city had increased from an average of 13.9 years at the beginning of the thirty-year period to an average of 29.4 years at the close. This is an increase of duration of life of considerably more than double—111.5 per cent.—in less than a single generation.

It was further shown that if those who died in 1898 had lived only to the same average age as those who died in 1869 their aggregate ages would have amounted to 318,268 years; whereas their aggregate ages actually amounted to 672,540 years—a gain of 354,272 years in the lives of the 22,897 persons who died in Chicago in 1898. Naturally these figures challenged adverse criticism from Chicago's envious rivals, who pointed out that a truer showing would have been made had death rates been computed on the basis of the population at given ages. No such data were at hand when the tabulation was made; the population by age periods at the eleventh (1890) census was not published until 1898, and was not received until July, 1899. Furthermore, the critics themselves, when they had recovered from their surprise, adopted the same plan and life actuaries and vital statisticians generally have since been busy figuring out gains in the duration of human life of which they had not before dreamed. These gains are found in every part of the civilized world and in varying measure as sanitary science and preventive medicine are more or less popularly understood and appreciated. In Chicago another proof of such gain is found in the increasing longevity of its population. Nearly one-fifth of those who now die have survived to be upward of sixty years of age. Out of the total of 453 deaths recorded last week eighty-seven averaged 72.2 years each, the youngest being 60 and the oldest 94 years 6 months 9 days. The aggregate lives of these eighty-seven decedents was 6,272 years. There were forty-six between 60 and 70, twenty-one between 70 and 80, fourteen between 80 and 90 and six over 90 years of age. Of forty-eight whose length of residence in Chicago was given the average age was a little over 74 years and their average length of residence in the city was 32.7 years. The longest period of residence was seventy-two years, the decedent being 85 years 5 months 14 days old at date of death. The proportion of those in this city who live to reach three-score and beyond is steadily increasing; the proportion of those who die under 5 years of age is even more rapidly decreasing.

The Rational Conduct of the Third Stage of Labor.—Dr. Rudolph W. Holmes read a paper on this subject at a recent meeting of the Medical Society. He said that the third stage of labor merits far more consideration on the part of obstetric attendants than is ordinarily meted out in general practice. It is a too commonly held opinion that the dangers of labor terminate with the expulsion of the child, that the placental stage is of little consequence. He considered anatomical, physiological and clinical facts and recommended the following plan: During the birth of the child's trunk the uterus is followed down by the hand of an assistant. While waiting for the cord to cease pulsating, the woman may be carefully turned to the recumbent position. Van der Wacker has given us the reason for this in the fact that women in the semiprone position have a low intra-abdominal pressure, and in the case of the newly-delivered woman this pressure may be negative and air may rush into the parturient tract causing infection, or even air embolus; in the act of turning, the uterus must be supported. Then the eyes and respiratory tract of the child may be attended to. The cord is ligated and severed, and the child turned over to the nurse or a person present. Very gently the slack of the cord within the vagina is pulled out, the mere weight of the raised cord may be sufficient to straighten it. Then a second ligature is placed about the funis as close to the vulva as possible; in the case of those who object to the second ligature a thread or catgut may be passed through the cord; either of these will furnish the index as to the advance of the cord. The cord is then thrown over one groin, the wet bedding is removed, and clean applied; the genitals are washed with lysol solution, the thighs strongly apposed or crossed, and sterile pads applied. Up to this time the uterus has been guarded by the hand, and the procedure is continued until the placenta is born. From time to time the pulse is noted, and the vulva is inspected as to hemorrhage; the hand will know the uterine condition. From time to time the contractions will recur, and eventually the upper segment will become harder, rounded and smaller (first sign); synchronously to this the fundus will rise, and the ligature will be found two to four inches from the vulva; sometimes the cord coils within the vagina; in such cases it is necessary to extract the loop, not "pulling on the cord." No arbitrary time may be given when the placenta may be expressed. The attendant waits until the four signs appear—it may be 10, 20, 60, or even 120 minutes exceptionally before they appear. Awaiting a contraction or two the preparations for the expression are carried out. The vulva is cleansed, and if suprapubic pressure disclose an accumulation of urine in the bladder it is emptied. The sterile basin, or at least a thoroughly clean basin covered with a sterile towel is placed at the vulva. At the height of the contraction the uterus is brought to the mid-line and perpendicular to the brim, fingers behind the uterus, thumb anteriorly, compressed, and then the uterus is depressed; this, so to speak, produces an artificial abdominal pressure and the placenta passes over the perineum, dragging the membranes after it. If there be any tendency for the membranes to be adherent, haste should be made slowly, seeing if in a little time they spontaneously will not separate; sometimes it is necessary to coil the membranes to produce separation, or often permitting the uterus to recoil will bring about the desired result. When the secundines have been disposed of, the uterus should be raised if it does not return of itself. Then the parts are again cleansed, aseptic pads applied, and the binder applied. In this outline nothing is said about massage, and it is needless to perform it unless there be abnormal relaxation or hemorrhage. In the event that massage does not stay the bleeding, then it is in order to do the Credé.

Post Offered Prof. Loeb.—It is reported that the University of California has made overtures to Prof. Jacques Loeb of the University of Chicago to induce him to go to San Francisco to take charge of the affiliated Colleges of Medicine and Dentistry. It is said that Prof. Loeb has not yet given a definite answer, but it is understood that he has signified his willingness to accept the position if the affiliated colleges are fitted up with a sea aquarium, so that he may be enabled to prosecute his researches in that direction.

GENERAL.

The Denver and Gross College of Medicine.—The Denver College of Medicine and the Gross Medical College announce that they have united. The school will be known as The Denver and Gross College of Medicine, Medical Department of the University of Denver. The college will be located in the commodious Haish Building, corner Fourteenth and Arapahoe Streets, Denver, Colorado, heretofore the home of the Denver College of Medicine. The teaching force will embrace the faculty and instructors of each school under the management of a Board of Trustees selected from each of the schools as follows: Dr. E. C. Rivers, president of the Board, Drs. Thomas H. Hawkins, E. J. A. Rogers, S. G. Bonney, C. K. Fleming, W. A. Jayne, Robert Levy, Leonard Freeman and Henry Sewall. The reputation of each of the schools is a guarantee of the still greater efficiency of the combined schools which will be conducted according to the rules of the Association of American Medical Colleges. The facilities and equipment of each school will be utilized in the new school and very material additions will be made thereto with the result that the college will offer a four-year graded course consisting of four sessions of eight months each, unequaled in character by any school in the West. The laboratories in all departments are modern and will be greatly enlarged and thoroughly equipped. The first two years of the course will be devoted to fundamental principles of the science of medicine and to laboratory work, and the last two years to the study of the practical branches of medicine and surgery, the application of laboratory methods in diagnosis and to clinical work by the students, which will form a prominent feature of the course. Members of the faculty hold positions on the staff of every hospital and sanatorium in Denver, a city of about 200,000 inhabitants, and every clinical facility of these institutions is at the command of the school. From fifteen to twenty appointments to the interne staff of these institutions are made yearly and the large majority are selected from this college. In addition to daily clinics in these various institutions the college conducts a large dispensary in its own building in which the third and fourth year students are required to study two hours daily making personal examinations, diagnosis and reports under direction of the dispensary staff and by clinical lectures by members of the faculty. The Denver and Gross College of Medicine, University of Denver, will offer to students a complete and thorough medical education after the most approved methods. The session of 1902-'03 begins September 9, 1902. Matriculation fee, $5.00. Tuition fee, $75.00 for present matriculants; for new students, $100.00.

Fourteenth International Medical Congress.—The Fourteenth International Congress of Medicine will be held in Madrid, Spain, from April 23 to 30, 1903, under the patronage of their Majesties, the King of Spain and the Queen-Mother. The President of the Congress is Professor Julian Calleja y Sanchez; the General Secretary is Dr. Angel Fernández-Caro, and the General Treasurer is Professor José Gómez Ocaña. The preliminary statement of regulations and programme has just been issued, and it announces that members of the Congress will be physicians, pharmacists, dentists, veterinary surgeons, and other persons working at branches of medical science, both Spaniards and foreigners, who have entered their names and paid their subscriptions. Other persons, who possess scientific or professional titles, and who wish to take part in the work of the Congress, may share in it under the above conditions. The subscription is thirty pesetas, and this sum must be paid before the opening of the Congress to the General Secretary, Faculty of Medicine, Madrid. A card of membership will be sent to the subscriber. Until March 20, 1903, subscriptions may be paid to the Secretary of the National Committee of the subscriber, but after that date subscriptions must be paid directly to the General Secretary at Madrid. Members will receive a summary of the proceedings of the Congress, and a full report of the work of the particular section which they join. The official languages of the Congress will be Spanish, French, English, German and Italian. Papers must be sent to the General Secretary before January 1, 1903, to be certain of a place in the order of business. Papers presented later will be considered after the discussion of those regularly announced. Communications should be accompanied by a short abstract, which will be printed and distributed among the members of the Congress. J. H. Huddleston, Secretary, American Committee, 126 West 85th Street, New York City.

State Board of Medical Examiners of New Jersey.—The annual meeting of the State Board of Medical Examiners of New Jersey was held at Newark, N. J., July 5th, and licenses were granted to the candidates who successfully passed the State medical examination at Trenton on June 17-18. Forty-eight candidates were examined. Of the total number of candidates examined, forty were licensed, one was expelled, and seven failed to pass, making a rejection of 16.6 per cent. Twelve midwives were examined for a State license, five of whom were licensed and seven rejected, making a rejection of 58 per cent. Examinations were held in materia medica and therapeutics, obstetrics and gynecology, practice of medicine, surgery, anatomy, physiology, chemistry, histology, pathology and bacteriology, hygiene and medical jurisprudence. Two hours were given to each section, in which ten questions were submitted. A total average of at least 75 per cent., or 675 points out of a possible 900, was required to obtain a State license. Of the candidates examined, four possessed the degree of A.B., two of Ph.G., one of P.D., and one of D.D.S. The policy of the Board in establishing and maintaining reciprocal relations with other States whose examining and licensing requirements are at least equal to those of New Jersey, has met with the approval of the profession. The number of States which have entered into reciprocity of medical license with New Jersey is steadily increasing. The following officers were elected:

President, Dr. John J. Baumann, Jersey City; Secretary, Dr. E. L. B. Godfrey, Camden; Treasurer, Dr. A. Uebelacker, Morristown. The next examination will be held in September.

Medical Science in Nuremberg.—German journals are complaining that medicine alone of all important sciences is not represented in the Nuremberg Germanic Museum, and funds are asked for making a historic collection.

The Cholera Situation.—Cholera is ravaging very widely in the Eastern countries. The peoples of India, China, Japan are all suffering and the reports from Manila are anything but reassuring. In Manila the disease first made its appearance in February among the Filipinos in the Tonda district. Fort Wallace was four miles from the infected district and it was abandoned. But few cases have appeared in the troops of the United States, but they are on the increase. Benzozone is being used as a disinfectant and is said to be effective.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, June 28, 1902.

MAJOR RONALD ROSS AND THE LIVERPOOL SCHOOL OF TROPICAL DISEASES—MR. HERBERT SPENCER AND SIR EDWARD CHADWICK—THE COOKING OF OFFICIAL STATISTICS.

MAJOR RONALD ROSS, of malaria fame, not long ago accepted an appointment at the Jenner Institute of Preventive Medicine in London, an establishment which a year or two ago received an endowment of $1,250,000. Ross was to be head of a new department of parasitology. His secession from the Liverpool School of Tropical Diseases would probably have been the ruin of that not-very-thriving institution which stands to one of the merchant princes of Liverpool, Sir Alfred Jones, in the same relation as the Bishops of the Anglican Church to Queen Elizabeth. It is recorded that when one of those dignitaries offended her, she addressed him as follows: "Proud prelate, I made thee and I can unmake thee!" The Liverpool School, in short, depends on the good will and pleasure of Jones who may let it fall back into nothingness when it ceases to be useful as an advertisement of his philanthropic enterprises. With the defection of Ross the main element in the boom had disappeared, the days of the school were numbered. But now it has at least got a reprieve for Ross is going back to Liverpool. The conditions of his appointment at the Jenner Institute were not to his taste, and he has shaken the dust of it off his feet. We may therefore expect to hear again of the Liverpool School of Tropical Diseases, as to which the press has been silent for the last few weeks.

In a new book entitled "Facts and Comments" which our only philosopher Herbert Spencer has recently given to a world that has almost ceased to listen to him, he tells a story of the great apostle of the gospel of health in this country, Sir Edwin Chadwick. Some fifty years ago a friend of Chadwick seems to have rather bored Spencer with his unmeasured praise of the sanitary reformer. Evidently with a somewhat spiteful memory of the boredom from which he suffered on that occasion, Spencer writes: "The form his talk took was an unstinted laudation of his friend Edwin Chadwick, the leader of the movement; and the particular trait singled out for praise was his perseverance in carrying out vast investigations. One illustration given was that if he needed proof of some point in his case, he instructed a man to examine and report, and if the man did not bring back the evidence he desired, he sent him about his business and dispatched another; meting out like measure to him, too, if he failed to furnish statements of the required kind; and so on, and so on, until he got the proof he wanted. All this was said with apparent unconsciousness of the damaging implications respecting Blue Books—the disclosure of the way in which a strong case is made out by omitting facts which do not support the foregone conclusion. Twice since that time I have had occasion to look into these masses of officially-collected evidence, and in both cases have seen how the bias of those concerned has vitiated the conclusions drawn."

Herbert Spencer's views on medical matters are peculiar, but in regard to the value of official reports he is to a large extent right. Instances can easily be given of the way in which facts are falsified either to serve the purpose of a government or to avert the wrath of a superior who is the victim of a fixed idea on some subject. Thus during all the time that a certain officer, now departed to another world, was at the head of the Medical Service in India typhoid fever disappeared from the reports. The official doctrine at that time was that enteric fever did not exist in India, and accordingly medical officers took care not to report cases. Indeed, it was made clear to them that the recognition of typhoid fever as occurring in India would interfere with their promotion. In one of our Egyptian campaigns there was an outbreak of enteric fever among the troops, but the cases were reported as "simple continued fever." A friend of mine came home in a troop-ship which carried at least thirty cases of well-marked typhoid, but one of which was reported as such. The following is a stillmore curious instance of the untrustworthiness of official statements. A medical officer in one of our West Indian Colonies was behind hand with his annual report and at last received a peremptory request from the Surgeon-General to send it in forthwith. He sat down there and then wrote it, and being somewhat short of material the idea occurred to hi mto fill up with some remarks on leprosy. He made quite a striking little story about the increase of leprosy in the island and he threw out the suggestion that this might have some connection with the increase of vaccination. On the "facts" contained in this report the antivaccination cranks built up a superstructure of the most imposing character, which collapsed like a house built of cards when the inventive author of the legend was examined before the Royal Commission on Vaccination.

SOCIETY PROCEEDINGS.

AMERICAN THERAPEUTIC SOCIETY.

THIRD ANNUAL MEETING.

Held in New York, May 13, 14 and 15, 1902.

(Continued from page 48.)

Medical Materials.—Dr. F. E. Stewart read a paper on this subject. Says the manufacturer: There is a great fixed gulf between science and commerce. The different principles involved are expressed by the words professionalism and commercialism. The medical profession is organized on a professional basis. Pharmacy is organized on a commercial basis. Science and professionalism are altruistic and commerce is selfish. Says the physician: True pharmacy or the manufacture of medicine is a branch of medical practice and the art must be organized on a professional basis. The final resting-place for every materia medica product is the Pharmacopœia, when the product is worthy of recognition. There it should be given its title, its constituents, purity, strength and process of manufacture. The knowledge developed by the work of scientists must be reduced to law and embodied in system. The physician must know the untoward effects of a therapeutic agent before he can use it successfully. Says the manufacturer: The profession of pharmacy is necessarily organized on a commercial basis, from the corner drugstore to the great manufacturing house. It needs a paternal form of government. In this way can the coöperative plan be carried out. Says the ethical physician: What can you say of the colleges of pharmacy which teach the professional ideal? Young men trained for a professional life, but doomed to a commercial one. And what is to become of the Pharmacopœia? It is abhorrent to the commercial proposition. Commercial pharmacy has no use for a pharmacopœia, said the manufacturer. Talk about being commercial! The doctor is the most commercial man among us. Surgeons charge big fees for operations. The fee for prescribing drugs is small in comparison. What is the use of a pharmacopœia when there is no law to enforce its standards? The introduction of a new materia medica product costs $50,000. Does the manufacturer make the investment for fun? Does he donate it to the public and spend a fortune in advertising the medicine for the benefit of his competitors? The whole idea is to educate a lot of competitors who, carrying out the teachings of colleges, and making their own products, take advantage of advertising and substitute imitations when good products are prescribed. In what does the manufacturers alleged proprietary right consist? What is the physician's prescription until the manufacturer takes it up and puts life into it? Before introduced to commerce the ingredients were dead things. When a drug is boomed by advertising how much is the demand due to its merits and how much to the advertiser? said the pharmacist. Said the physician: A business built on pretence has not even the right to call itself legitimate. The secret of advertising is competition, said the manufacturer. Commerce depends on ability to attract. Many years are required to decide the merits of an article. The method of developing knowledge can only be successfully practised by coöperation. When a manufacturer has invested a large amount of money in a new materia medica product it is but natural that he should desire a monopoly. He also desires protection. There is difference between legitimate competition and fraudulent substitution.

The question of copyright in the Encyclopedia Britannica has a long history. The proprietary system of the so-called proprietary medicine trade is established. To the author and inventor belongs the royalty of his invention. What inventor would claim a right he could not enforce? The names of products are nouns of language and common property. The proprietary rights are of the strongest kind. It is in the distinguishing *brand*. He acquires no right on the product, but on the particular brand of the product. The products are introduced to science; the brands are introduced to and egoistic, the centrifugal and centripetal. In France commerce. The two forces at work are the altruistic and Germany materia medica products are excluded from patent protection. The mistake has been in classifying medicines as a class and attempting to use the name of each medicine in the class as but a mark to distinguish brands. As well class all chemicals as a class and call cobalt and tin trade-marks.

The person who produces a new article and is sole maker of it has the greatest difficulty in claiming the name of the article as his own, because if somebody else produce an article under the same name there is nothing to distinguish them. Any one can throttle trade under alleged sanction of law. A process patent is a farce so far as protection is concerned. Trade names belong to commerce. There can be no uniformity in materia medica products unless the products themselves conform to certain standards as to nomenclature, character and strength. To the standards of the Pharmacopœia all manufacturers should conform. A pharmacopœia cannot be founded on controlled products or nostrums without converting it into a nostrum catalogue. The manufacture and sale of materia medica products should be open to competition. Secret nostrums should not be tolerated. No physician should prescribe such. The remedy lies in the education of medical students in the use of pharmacopœial products, and in securing coöperation of proper commercial interests by affording protection to capital invested, and the use of brands or word-marks to distinguish one product from another. The author's report to the National Bureau of Materia Medica deals with ways and means of bringing this about.

Therapeutic Uses of Organic Extracts.—Dr. O. T. Osborne, of New Haven, Conn., said that the minute secretions of the internal ductless glands have so much to do with the so-called functional diseases and so modify the course of acute and chronic disease that we not only can afford to discuss the subject frequently, but cannot afford to ignore it. This paper was a discussion of the proved therapeutic preparations of the ductless glands and a few unproved therapeutic indications. Before seeking rational uses of the organic extracts, we must understand the physiology of the glands from which the extracts are made. The therapeutic uses of other organic extracts are more or less experimental, but have been learned empirically. In discussions of organotherapy, it is always best to take up the gland of which we know most, namely the *thyroid*. The physiological action of the thyroid is so well understood that we are hardly justified in describing it. The secretion from this gland by its vasomotor component regulates peripheral circulation and the ratio of heat loss through insensible perspiration, disturbance of the function showing on the one hand in the drying of the skin in undersecretion, or myxedema, and on the other hand in the profuse sweating or hypersecretion or Graves' thyroid disease. This vasodilating element also has something to do with regulating the circulation in the brain and the hypersecretion of this gland can also disturb the regularity of cardiac contractions as seen so markedly in Graves' disease. A stimulating element in this secretion seems to irritate the brain and, in excessive amount causes cerebral excitation, nervousness and sleeplessness. Other parts of thyroid secretion regulate the amount of mucin and connective tissue that shall be present or develop in tissues, and if this secretion be diminished mucin appears in the skin and an abnormal amount of connective tissue develops in the skin and arterial system. This gland is easily excited to hypersecretion, temporarily by emotion and normally by menstruation and pregnancy, this probably being the cause of more persistent increased secretion and more frequent hypertrophy in women than men; 80 per cent. of all cases of Graves' thyroid disease occur in women. This gland seems to be the cause of the dilated blood-vessels of the uterus, periodically allowing the leakage of blood, or menstruation. Between the ages of forty and fifty this gland begins to atrophy, more frequently in women than in men, for 80 per cent. of all cases of myxedema occur in women. In the normal individual a small dose of thyroid would be but little noticed for a long period, but when large doses of either thyroid extract, thyroid gland or idothyrin are given persistently there will be nausea, vertigo, with increased heart action, a tendency to increased sweating and diuresis, with possibly faintness, cerebral irritation and tremor. Even glycosuria may be produced. Thyroid should not be administered in any case in which there is an increased amount of sugar in the urine. Thyroid feeding in cretinism, myxedema and operative myxedema is a proved fact. In cretinism the dose should be small, and for physiological purposes the dose should never be as large as the daily output of any of these glands. Dried powder on the tongue of patient, about three centigrams three times a day, is a good starting dose. If the temperature rise, pulse grow rapid or child become nervous, irritable and sleepless, too large a dose is being given. As soon as child has improved a small dose once or twice a week may be sufficient. Regulate dosage according to age. In cases of simple goiter thyroid treatment has no special utility. If the patient be overweight, fat or flabby, the treatment would be of value, but iodid would do as much good. In Graves' disease, which is due to hypersecretion, thyroid extract is contraindicated. Symptoms are increased by thyroid treatment during the activity of the disease, which tends to recovery sooner or later. Cases of undersecretion and mental sluggishness will be benefited by thyroid extract. The rule in Graves' disease is: If there be cerebral excitement, progressive loss of weight, thyroid treatment is contraindicated. If the patient be sleepy, apathetic and is putting on weight, thyroid may benefit the case. There can be all the symptoms of disease without exophthalmus. In many cases in which there is a family tendency to be stout, weight will return more or less rapidly after treatment with thyroid. Weight from forty to fifty years of age is in a large measure due to diminished thyroid secretion. Small, infrequent doses will then be of value. A gland can undersecrete or hypersecrete sufficiently to produce disease. Dry eczemas of old age may be due to diminished thyroid secretion. Many children, though not cretins, have diminished thyroid secretions as evinced by general appearance. Large glands of the neck in strumous children have been known to improve under thyroid treatment. The increased blood-pressure after fifty years of age may be due to this loss of dilator stuff and as a consequence occur endarteritis and all its manifold consequences. Is not the drying and wrinkling of the skin in old age due to diminished secretion of this gland? In arteriosclerosis and head and circulatory disturbances of high pressure it has been found that small doses of thyroid were beneficial. The author has not had sufficient experience with it as a stimulant to the brain to be used in melancholia to be sure of what it will do. The pituitary body should be studied in connection with the thyroid, for disturbance of the one gland usually finds disturbance in the other. The early symptoms in acromegaly are often complicated by secretions and symptoms due to hypersecretion of the thyroid. It also closes up and diminishes colloid containing acini. We not only have enlargement of bone from pituitary disturbance but thickening of skin. Giantism is due to hypersecretion of the thyroid. According to Dr. Kuh, of Chicago, feeding pituitary tablets to patients with acromegaly, suffering from headache, and who are muscularly weak, ameliorates the clinical conditions. No other treatment, chloral, and bromides not excepted, will relieve this cerebral headache as does pituitary. Dose, two or three 3-grain tablets per day. It is logical treatment for dwarfs. The thymus gland is the richest in the body in nuclein and physiological phosphorus. This gland furnishes normally the kind of salts used for repair in tuberculosis; with hygienic treatment, thymus gland always improves the condition. It seems physiologically more effective than the hypophosphite treatment. Small doses, two or three 3-grain tablets a day. Suprarenal glands have been so much discussed that it is almost unnecessary to mention them. Abel's epinephrin and Takamine's adrenalin have placed clinicians in a position to positively determine the wonderful blood-pressure-raising properties of these glands. The inability to raise blood-pressure or to stimulate the heart after suprarenal or any other preparation has been taken into the stomach is a proved fact. The power to raise blood-pressure when adrenalin is applied subcutaneously has also been proven, thanks to Dr. Bates. Whether or not adrenalin is the purest product of suprarenalin to raise blood-pressure is not determined, but it is the best product there is to-day for the purpose. Dose, five to ten drops of a 1-to-1000 solution of adrenalin on the tongue every fifteen or thirty minutes for a few times and then every three hours. In the case of a boy with diabetes, suprarenal extract reduced the sugar in the urine more than any other drug. Adrenalin should be used in all cases of low vasomotor tension, typically in Addison's disease and anemia. It should be used with care after the age of fifty. Adrenalin is indicated in shock from anesthesia and narcotic poisons and dangerous dilatation of the abdominal blood-vessels. The gland of which little is known is the ovary. These organs should not be rudely removed. If it be necessary to do ovariotomy or oophorectomy, it would be logical to feed ovarian substance. It has been given to chlorotic and anemic girls, but thyroid substance is of more benefit. Ovarian substance value is still experimental. In regard to testicular or orchitic extract there is little to say. That the gland has some important internal secretion, there is little doubt. When the infection of mumps strikes the testicles the high fever of 105 and 106° F. from intoxication, shows that the secretion retarded or hypersecreted should be studied. There is a suggestion of using the parotid gland for dysmenorrhea. Thyroid tablets for epilepsy have proven beneficial. Whether one can depend on mammary extract therapeutically is still unproved. The full paper appears in this week's issue of the MEDICAL NEWS.

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-seventh Annual Meeting, Held at Atlantic City, May 27, 28 and 29, 1902.

The afternoon session was devoted to a

SYMPOSIUM ON RETRODISPLACEMENTS OF THE UTERUS.

Dr. M. D. Mann, of Buffalo, spoke of the etiology, pathology, and symptoms. He excluded anterior displacements as of no pathological significance and devoted his attention to such as were posterior. He spoke of the three methods of attachment of the uterus, by its ligaments, to the vagina, and to the pelvic floor. One or another of these attachments must be weakened to permit displacement of the organ. Of the various attachments the round ligaments were of especial importance as muscular organs, and were greatly influenced by the intra-abdominal pressure which largely controlled the movements of the uterus. Of special importance also were the uterosacral ligaments; if they became relaxed the uterus must necessarily fall as the result of intra-abdominal pressure. Again, if there were weakening of the pelvic floor, backward and downward descent of the uterus would follow; an example of this was seen if the perineum were very considerably weakened. The results of uterine displacement were interference with the pelvic circulation, usually congestion, and consequent interference with nutrition. Chronic metritis of a non-infective character, endometritis, and dysmenorrhea were the conditions which the gynecologist was called upon to treat. Among other causes of displacement could also be mentioned laceration of the cervix, severe strains, and violent cough.

Among the noteworthy symptoms were backache and bearing-down pain. Some cases were apparently without symptoms, but eventually they would be almost certain to come. Certain reflex disturbances were also frequent accompaniments, among which might be mentioned gastric disorders, and various troubles of the eyes.

Non-Operative Treatment of Displacements.—Dr. F. H. Davenport, of Boston, considered the subject under three heads: (1) What methods were possible? (2) What treatment was desirable? (3) What results had been achieved? The treatment by means of pessaries was a very ancient one, older than the Christian era, the condition for which they were originally used being that of prolapsus; other indications have arisen more recently, especially since the use of the bimanual method of examination. For all forms of displacement the pessary was at one time deemed satisfactory and efficient as a means of treatment. Hardly any other method of non-operative treatment is worthy of mention. Massage has been practised in Sweden and other countries for this purpose, but its results were often unsatisfactory and its successes few. General treatment was advocated by some authorities, but it could hardly do more than cure certain symptoms. Electricity also had its advocates, but its successes were not conspicuous. The operative and the pessary modes of treatment were alone worthy of serious attention. In recent years the pessary treatment had been displaced by the surgical. The pessary was disliked by many, for it must be worn indefinitely. It could not be denied that the pessary was sometimes useful. If retroversion of the uterus were the only pathological factor in a given case the pessary might produce a cure. In women who had borne several children and in whom retroflection followed parturition, a pessary worn for a few months, together with general tonic treatment, would often result in a cure. In neurasthenics who suffered from retroflexion the pessary was often useful as an adjunct in treatment, but if the patients were unmarried its use might be objectionable. Many women would submit to the use of a pessary on account of the dread which they had of an operation. According to the author's study of the statistics of the question he believed that from one-third to two-thirds of those who were treated might be cured, anatomically or symptomatically, by the pessary.

The Alexander Operation.—Dr. Clement Cleveland, of New York, believed that this operation had grown in favor as the years had passed. While primarily designed for the relief of displacements backward, it could also be practised with advantage for anteflexion. The forces which sustain the uterus in position and the function of its different ligaments were then described. The operation in question could not be used for all cases of displacement; in order to be effective the uterus must be movable and replaceable and capable of being held in position by a pessary. It should not be used if the uterus is held down by adhesions, if it is very heavy or if it is prolapsed. An operation devised by Bissell in which both broad and round ligaments were shortened was sometimes preferable to the Alexander operation. Preparatory to the Alexander operation the uterus should be replaced and a pessary worn at least two months. This use of the pessary frequently facilitated the subsequent operative treatment. The operation was based upon correct anatomical principles. The technic of the operation was, in brief, as follows: The abdomen must be thoroughly cleansed, and the patient placed in the Trendelenburg position. The uterine canal must be dilated and curetted, the pessary being retained in the vagina. An incision one to two inches long must be made from the spine of the pubes outward, and provisional suture placed in each angle of the wound to draw it open. The external ring having been exposed, the mass of fat which it contains was pressed upward and grasped with forceps. In this mass the round ligament would be found. After isolating from it the genitocrural nerve, the peritoneal covering of the ligament was to be stripped off, the ligament being drawn out to the extent of four inches. Sutures of cumol catgut were then passed through the ligament and through the pillars of the ring, and the external wound closed. The dressings should be changed daily, and the sutures removed from the skin in forty-eight hours. The patient should be kept in bed three weeks.

Abdominal Suspension.—Dr. Hunter Robb, of Cleveland, O., considered three classes of cases, (1) those which were practically uncomplicated, (2) those which were complicated by adhesions, (3) those in which there were morbid conditions which called for abdominal suspension as a supplementary procedure. There were advantages and disadvantages in this method, and the advantages were sometimes direct, sometimes indirect. Relief was not always obtained; in some cases the uterus pulled away from its attachment, the displacement recurring. If the uterus were suspended in a position of exaggerated anteflexion this accident would seldom occur. Sepsis could occur with this as with any other operation. In some cases pregnancy had been interrupted by the operation. It should not be overlooked that if difficulty occurred it might also be due to something beside the operation. As a matter of fact the majority of cases of obstinate retroflexion were cured by this mode of treatment.

Intra-Abdominal Shortening of the Round Ligaments Per Vaginam.—Dr. J. Riddle Goffe of New York, said that to treat such a problem as this successfully it was necessary to understand the dynamics of the female pelvis. The uterine ligaments are the means by which it is supported. If the organ is out of place it is evident that something must be wrong with the ligaments. He considered the uterosacral ligaments of greatest importance as uterine supports, and next in order the round ligaments. His method of treatment consisted in making a transverse vaginal incision anterior to the vaginal portion of the cervix, and a longitudinal incision from its middle point at right angles to the first; through this opening the uterus was drawn and one round ligament and then the other shortened by looping it upon itself and stitching the folds together. The chief advantage of this operation was that it was performed through the vagina, consequently with less danger than by abdominal incision and without abdominal scar. He had operated in 130 cases and knew of but three failures.

Shortening of the Uterosacral Ligaments.—Dr. J. W. Bovée, of Washington, D. C., said that this operation was designed for retroversion only and the various pathological symptoms which accompany it. In such displacements the cervix lies farther forward than is normal, resulting in faulty application of the intra-abdominal pressure. Less support than the normal is also obtained from the broad ligaments in such cases. This condition is frequently a consequence of parturition. The author then referred to the dynamics of the situation, also described the anatomical structures which were concerned and their function. The uterosacral ligaments draw in an upward and backward direction and it was believed that they played the most important part in holding the uterus in position. Various operations for shortening them had been devised and the speaker proceeded to describe the one which had been suggested by Byford. A transverse incision was made in the posterior vaginal fornix and the ligaments exposed. Each ligament was then folded upon itself and sutures passed to hold the folds in position, thus contracting the ligaments and driving the cervix upward and backward. The operation could also be done through the anterior vaginal fornix or through a median abdominal incision. Some writers advocated the attachment of the ligaments to the fascia at the sides of the pelvis but this was not believed to be as good practice as looping them together. Kangaroo tendon was advised for suture material and the sutures were to be retained two weeks. An additional operation upon the anterior wall would be required in some cases.

The discussion upon these several papers was opened by Dr. Mann, who called attention to the tendency of inflammatory masses in the posterior fossa of the pelvis to drag the uterus backward. He believed in the efficacy of the Alexander operation for backward displacements, and would also advocate it in selected cases if the uterus were prolapsed. This would prevent the uterus from descending again and acting as a wedge to force open the vagina. There was utility in all the operations which had been recommended, but they must be selected in accordance with individual conditions.

Dr. Mosely stated that inasmuch as the position of the uterus was dependent upon the intra-abdominal pressure, it was necessary that this should always be exerted in the normal direction.

Dr. Cushing thought the field of usefulness of the Alexander operation a very limited one. If the uterus were very movable, even though retroflexed, it might not require operative treatment. His preference, in treating posterior displacements, was for a short transverse incision through the abdominal wall, the round ligaments being then shortened from within. By such an operation the possibilities of clean aseptic work were favored.

Dr. Cragin reported that at the Sloane Maternity Hospital no bad results had followed the practice of Alexander's operation. From ventrosuspension there had been one case of dystocia following suppuration with adhesion of the uterus to the abdominal parietes.

Dr. Bache McE. Emmet believed that most of the operations which had been described overlooked the plastic work upon the vagina which had heretofore been deemed essential as a preliminary to the restoration of the uterus to position. Involution of the uterus should first take place, and inflammatory deposits be removed before the uterus was operated upon. Treatment by vaginal douches, massage, and other means would often be found useful as preliminary measures.

Dr. Peterson thought it desirable that some cases should be regarded from the medical standpoint before they were operated upon. This was especially true with single women, who frequently declined a surgical operation. With regard to the use of pessaries they seldom produced a cure. The Alexander operation might be modified so that the cervix would be drawn upward and backward.

Dr. Harris believed that the pathological symptoms in a given case should be studied before an operation was chosen. He believed it quite possible that bad results should follow ventrosuspension when the attachment was made to the posterior wall of the uterus.

Dr. Wylie said that in any case the proper thing was to remove the cause of the displacement; such a cause often consisted in the imperfect development of the uterus. He believed that ventrosuspension was seldom desirable as an operative procedure.

Dr. Boldt thought it should depend upon the condition of the patient whether operation or mechanical treatment were adopted. With reference to massage he had given it a thorough trial and believed it almost always inefficacious.

Dr. Currier believed it necessary to clearly understand the anatomical problem in any given case before attempting its treatment. An operation should not be performed which violated normal anatomical conditions. We could seldom improve upon Nature. He was in favor of operations upon the round ligaments, according to the circumstances, preferring generally a median abdominal incision and shortening the round ligaments by folding each upon itself as recommended by Wylie.

Dr. Ashton believed that any lesions in the uterus should be cured before a surgical operation was performed. Pessaries were often useful, especially if the displacements were of recent occurrence. It was a mistake to so contract the round ligaments that they would be drawn taut, as this was not their natural condition. He believed that ventrosuspension was the ideal operation.

Dr. Vineberg believed that all cases of retroversion were attended by symptoms if the fundus were below the promontory of the sacrum. His preference was for the operation upon the round ligaments through an anterior vaginal incision, as devised by himself. As to the results of that operation he had observed eight pregnancies occurring in six women.

Dr. Dickinson reported five cases in which the uterosacral ligaments had been shortened through the vagina. It was sometimes very difficult to isolate the ligaments, more difficult than to find the round ligaments by Alexander's operation. The transverse incision of the abdomen which had been mentioned was often a desirable way to reach the round ligaments in thin women. Alexander's operation was frequently followed by hernia if the operation were long and difficult.

Dr. Dudley thought the question of operation was one of mechanics and of architecture. The round ligaments would only support the uterus within certain limits. The uterosacral and uterovesical ligaments were constant in their action, while much of the support of the uterus was derived from the pelvic floor.

A Further Contribution to the Study of Lactation Atrophy.—Dr. Hiram N. Vineberg, of New York, read this paper. Lactation atrophy he said was synonymous with superinvolution of the uterus following parturition. The physical process, as to the uterus, accompanying lactation whether accompanied by amenorrhea or not was temporary in character. It often comes after prolonged lactation and was described by Sir James Simpson. The author had seen a few cases in which the atrophy had been permanent. Among the women of great fecundity menstruation sometimes disappeared, lactation continuing until pregnancy recurred. The atrophy in question affected both the cervix and body of the uterus; the ovaries did not seem to share in the process. Atrophy is most marked in those who nurse their children for long periods, fifteen months to two years; those who nurse only four or five months have it in a lesser degree. This condition has little to do with the condition of the blood, though many of the women who have it are anemic. Physiological atrophy to a certain degree takes place from the sixth to the tenth week after labor, even if lactation has not occurred. It is probably due to the reflex irritation of the uterine nerves resulting from nursing. With the end of lactation atrophy ceases, and this should usually be from the seventh to the ninth month. Imperfect involution of the uterus was probably the cause of much of the disease of the pelvic organs, and was probably next in importance to gonorrhea as such cause. The uterus should always be examined from eight to ten weeks after parturition, and if involution were incomplete it might be well for the examiner to practise massage upon it.

Dr. Smith believed that nursing should be continued beyond the seventh month when possible. Contraction of the uterus associated with nursing was a normal process; such an atrophy was not abnormal.

Dr. Grandin thought the term atrophy for such cases as were under discussion a bad one, since the uterus only resumed its normal condition under the influence of nursing, and was in subinvolution if nursing were not practised. All women should nurse their babies if it were possible.

The Relative Advantages of the Complete and Partial Hysterectomy.—Dr. E. E. Montgomery, of Philadelphia, Pa., said that the extra-abdominal treatment of the pedicle after hysterectomy was long regarded as the best possible treatment, in spite of its difficulties and dangers. The logical evolution of the subject involved the entire removal of the organ, or the covering of the cervical stump with peritoneum. The credit for the idea of covering the stump with peritoneum belonged to Parkes of Chicago, who was the first to practise it. The various steps in the evolution of the operation were narrated. Complete hysterectomy was first advocated by Dr. Mary Dixon Jones in 1887 and was practised by her in 1888. The method of hysterectomy as devised by Doyen was then described and it was advocated as the best method in most cases. Complete hysterectomy was thought preferable to partial hysterectomy as a rule.

Dr. Noble favored amputation of the uterus at the cervix as safer than complete hysterectomy. Doyen's personal results had been very bad. Of ten hysterectomies, in eight death had resulted from hemorrhage, one from tetanus, and one had recovered. The speaker favored the method of complete hysterectomy as devised by Kelly. If the cervix were not removed there need be little fear of malignant degeneration as a consequence. He had seen but one case of malignant degeneration in several hundred hysterectomies.

Dr. Cushing believed that the credit of originality in advising the operation of complete hysterectomy belonged to Bardenheuer. Personally, he was in favor of retaining the cervix as it had a physical function and was especially important in young women.

Dr. Dudley had seen Doyen's method practised by its author and was not impressed with its advantages. He preferred American methods.

Dr. Harris prefered to retain the cervix if it were not the seat of disease. Less time was required for partial than for complete hysterectomy and there was less danger of sepsis.

Dr. Cleveland was formerly in the habit of removing the entire uterus, but since his adoption of cumol catgut for ligature purposes he had been satisfied with the supravaginal operation. The formation of abscess under the peritoneal covering of the stump was favored when the cervical stump was closed by layer suturing, especially if chromic catgut were used. He considered the latter an irritating and possibly a dangerous substance in the peritoneal cavity from the presence of free chromic acid.

Dr. Stone had seen one case of sarcoma of the cervix after the partial removal of the uterus. If the angiotribe were used in place of silk ligatures the danger from infection would be lessened. If there were myoma of the body of the uterus the cervix was usually diseased as well and it was better to remove it.

Dr. Baldy had seen none of the abscesses which seemed to be so much feared and used ordinary catgut sterilized with bichloride of mercury. Very few catgut ligatures were required for the closing of the peritoneal wound and those only for a few hours. He favored the retention of the cervix for the reasons which so many had mentioned.

The address of the President, Dr. Seth C. Gordon, of Portland, Me., was in part as follows: Sims is the father of modern gynecology. His was a great work in devising operations, and in foresight as to the future of abdominal surgery. His work in the treatment of vesicovaginal fistula resulting from imperfect obstetrics forms an epoch in the history of surgery. This accident has now become comparatively unknown as the result of Sims' labors. Previous to his time the teaching of gynecology was of almost no value. Emmet placed the plastic surgery of the genital organs upon a practical basis. His work led to the removal of errors in obstetric practice, gynecology thus becoming the teacher of obstetrics. The development of gynecology was further favored by the brilliant lectures of Thomas, who had no superior as a teacher. His text-book is a marvel of clearness and his choice in abdominal surgery were a school for multitudes. His work in the teaching of obstetrics and the proper methods of repairing the injuries received during parturition is also of great importance. Obstetrics as an art was not yet perfect; the speaker believed the forceps are used too frequently and too early by many accoucheurs. The performance of Cesarean section in preference to craniotomy is one of the triumphs of obstetric art. Emmet taught the useful lesson that patients should be carefully prepared before operations are performed upon them, though it is quite possible to prolong the preparation unduly. Peaslee, the teacher of pathology, had taught that inflammation was a process and not a condition and that it left chronic passive congestion as a result. Much of the teaching of Emmet in regard to laceration of the cervix has been misunderstood and operations have frequently been performed which leave the patients worse instead of better. Some of the other gynecological operations, notably dilatation and curettage of the uterus, are too frequently and too imperfectly performed, so that there is still need for the trained and skilful gynecologist. There is still too much intrauterine medication, though less than formerly. There is still the possibility of investigation in the field of diseases of the bladder, also conservative work upon the uterine appendages still calls for encouragement. Many of the most important features in surgical technic have been devised by gynecologists and they have stimulated the general surgeons to development in their field. The work in malignant disease of the genital organs still remains unsatisfactory and much more may also be done in connection with the surgery of the vagina and the pelvis.

The Treatment of Placenta Previa; Cesarian Section Not Justifiable.—Dr. Robert A. Murray, of New York, said that the improvements in abdominal surgery had tended to make its performance more frequent. The ease and comparative freedom from risk with which it was performed had recently led to its advocacy in the treatment of placenta previa. This accident occurred once in six hundred cases of labor, and was more frequent in pluriparæ than in primiparæ. Delivery should always be accomplished with the least possible danger to both mother and child. If the hemorrhage were severe at the beginning of labor the vagina should be tamponned until the cervix is dilated and delivery then be accomplished as rapidly as possible. In hemorrhage occurring before term, the child being viable, one should wait until term if the bleeding is not too profuse, then dilate with Barnes' bags, perform bipolar version, separating the placenta at the side, and deliver as rapidly as possible. The waters should be retained if possible until delivery is about to be accomplished, though Puzot advises their early evacuation. The statistics of this method of procedure show a small maternal mortality, but the fetal mortality was thirty per cent. or more. Cesarean section had been advocated by Zinke as a legitimate elective procedure, whether the placenta be completely or partially central, especially in primiparæ, if the bleeding could not be stopped. There were many objections to this procedure. The patients were usually too exhausted to bear the operation, often too weak to be taken to a hospital, and the conditions would seldom be favorable to its performance at their homes. Such cases can seldom be elective, for the obstetric surgeon almost always sees them as emergencies. The statistics of the operation thus far fail to give the dimensions of the maternal pelvis or of the child's head. If the operation were done at all it should only be when the pelvis is contracted.

Dr. Williams was opposed to the operation and protested against its use except in a very small number of cases, in good hospitals, by competent surgeons and when it is found impossible to dilate the cervix.

Dr. Harris was opposed to the operation. He advised dilatation with the hand when the hemorrhage began, following with version and delivery. If the cervix were rigid a steel dilator should be used. Dilatation required an hour if the cervix were rigid, and twenty minutes if it were soft. If the cervix were badly lacerated by the dilatation a suture should be introduced, or the parts could be held in apposition by forceps.

Dr. Jewett thought the most recent statistics of the operation more favorable than those of Zinke, but the condition of both mother and child when seen by the obstetric surgeon would usually exclude Cesarean section.

Dr. Dudley believed that such operations were beyond the scope of the general practitioner. When the diagnosis of such a condition was made the patient should be sent to a hospital as quickly as possible for such treatment as might be indicated.

Two Conditions Simulating Ectopic Gestation.—Dr. E. P. Davis, of Philadelphia, said that the point to be established was that conditions other than hematocele might simulate ectopic gestation. In the first case an exudate in the vagina was found after menstruation. It was observed for a week, when abdominal section was recommended and declined. A vaginal section was allowed and a clot was found in the pelvis. A discharge from the uterus followed and death from sepsis occurred within a week. No evidence of pregnancy was found in the postmortem specimen. The sepsis was due to the introduction of a sound into the uterus. In the second case an abortion was supposed to have taken place, the pelvis was filled with exudate, and the breasts gave the signs of pregnancy. Abdominal section showed a retroverted pregnant uterus with normal tubes and ovaries. The patient recovered, retained her fetus until the six month and then aborted. It was recommended that abdominal section be performed in doubtful cases like the foregoing for purposes of diagnosis.

Dr. Grandin observed that the diagnosis of ectopic gestation was not a simple matter in all cases, the classical symptoms being absent. The symptom which was usually to be relied on was abdominal pain, which signified rupture of the ovisac. An operation was indicated with such a symptom. Incision through the posterior vaginal fornix might establish a diagnosis if blood or a clot were there.

Dr. Pryor said that hemorrhage from the ovary simulated ectopic pregnancy and a vaginal incision might be indicated. The cause of such hemorrhage was usually unknown; it was accompanied by a rapid pulse and a mass of exudate in the pelvis.

Dr. Ford reported two cases which simulated ectopic pregnancy; in the first case operation revealed a fibroid tumor and uterine gestation at the fourth month; in the second a tuberculous mass which included the appendix.

Dr. Manton reported a case in which rupture of a large vein at the lower portion of the ligament led to the erroneous diagnosis of ectopic gestation.

A Clinical Report on Ureteral Surgery.—Dr. Charles P. Noble, of Philadelphia, Pa., read a paper which included the author's personal experience with this subject. In the first case there was a stone in the ureter which was removed by incision. There was suprapubic and ureteral drainage and recovery resulted. In the second case hysterectomy was performed for subperitoneal hematocele and intraligamentous cyst. The lower half of the ureter which was included in the tumor was also removed. The remainder of the ureter was attached to the abdominal wound, and subsequently was removed with the kidney to which it led. No other plan of treating ureter and kidney seemed practicable. In the next case a multilocular ovarian cyst was removed, the ureter was injured and death resulted. Next was a papillary cancer of the left ovary, with injury to the ureter and recovery. In the next an operation for cancer of the cervix resulted in vesico-ureteral fistula. The patient recovered. In the next a sarcoma of the uterus was removed; the ureter being injured, the patient died from nephritis. The next case was one of cancer of the cervix with pregnancy at the fourth month. The left ureter was wounded and death followed on the fourth day. In the next case the ureter was perforated by the ureteral catheter, a stone being present in the ureter. The patient recovered.

Dr. Pryor reported a case of ureteral anastomosis with the bladder following an operation for cancer of the uterus.

Dr. Jewett reported a case of Cesarean section for cancer of the cervix in which the right ureter was cut. It was implanted obliquely into the bladder and the patient recovered.

Dr. Reynolds favored drawing the cut ureter through an opening in the bladder and then clamping it in position by means of narrow forceps, one blade of which compressed the lower wall of the ureter and the other the wall of the bladder in close apposition to the end of the ureter. In a case in which this procedure was tried the forceps were left in position twelve days and then withdrawn. Examination with the cystoscope showed that union between the bladder and the end of the ureter was complete.

Dr. Smith narrated a case of implantation of the ureter into the bladder by Van Hook's method.

Dr. Cushing described a method of closing a ureteral fistula by first making a vesicovaginal fistula, then introducing a ureteral catheter, then opening the abdomen and closing the fistula over the catheter introduced into the ureter.

Dr. Bache Emmet thought it very important to cover securely with peritoneum the junction of the divided ends of the ureter. He would object to the use of the ureteral catheter as the previous speaker had described it, if it were to be left *in situ* for any length of time, as the urine salts would quickly form about it.

Dr. Buckmaster believed that all work upon the ureters should be preceded by experimental observations upon the lower animals.

Dr. Bovée warned his hearers that in all operations in which the cut ureter was reintroduced into the bladder the natural relations of the opening should be observed. It was a mistake to have the opening too large and it was equally a mistake to have it too small.

The Principles Underlying the Repair of Cystocele and an Operation Founded Thereon.—Dr. Edward Reynolds, of Boston, described the attachment of the anterior wall of the vagina within the pelvis and showed the impracticability of attempting to cure the cystocele without first curing the prolapse. The ordinary methods of treating the prolapse by merely denuding the epithelium and covering in the prolapsed anterior wall after the methods of Emmet and Sims was shown to be irrational and would usually be ineffective. Dr. Reynolds' operation consisted in removing an extensive triangle of tissue, the base of which was immediately anterior to the cervicovaginal junction and its apex at the termination of the prolapsed portion of the vagina. This triangle was closed by a sufficient number of interrupted sutures passed from side to side.

Dr. Currier felt that the defect of this operation was that of others, that it left a weak line of support in the middle of the vagina, and the same forces which produced prolapse in the first instance would be likely to do it again. He referred to an operation which he had devised and published ten years ago, which experience showed him had this defect to which he had referred. He now wished to describe a new operation which he had performed but twice, and had not yet published. Its principle consisted in diverting the pressure of the bladder from the middle line to the two sides of the vagina. A sufficient portion of tissue was removed from either side of the anterior wall of the vagina, and a sufficient portion from the two lateral walls. The edges of the wounds on either side were then drawn together and secured in the firm fibrous tissue in the two lateral walls. The pressure from the bladder was in this way divided and it was believed that the prolapse would be less likely to recur than by any method which united the tissues in the middle line of the vaginal wall. The speaker hoped to make another report when more experience had been obtained.

Dr. Dudley thought the question with prolapse of the anterior vaginal wall was merely to convert a convex surface into a concave one, and this could be done by the removal of a central ellipse of tissue and union of the wound in the middle line.

Anterior and Posterior Colporrhaphy by a New Method.—Dr. I. S. Stone, of Washington, D. C., described the appearance of the prolapsed pelvic organs when viewed through an opening in the abdomen. Of the pelvic organs the bladder is the one which is most frequently the seat of displacement and descent. The principle advanced was to depend as much as possible upon the tissue at the sides of the anterior vaginal wall, which is stronger and less resilient than the tissue in the middle. The operation on the anterior wall is begun by an incision in the median line down to the bladder. The vagina is then pulled back on either side, and the prolapsus obliterated by the removal of all redundant tissue. The remainder of the vaginal wall on either side is then brought to the median line and the wound closed with a sufficient number of interrupted catgut sutures. The same principle is observed on the posterior wall, the incision being carried down to the rectum, the rectum pushed out of the way, all redundant tissue excised and the wound closed in the median line.

Dr. Currier criticized the operation upon the anterior wall, believing that the same forces which had produced the vaginal prolapse would tend to reproduce it after the operation described by the reader of the paper had been performed. It was not sufficient to remove the redundant tissue; the direction of the forces which tended to cause the prolapse must be changed and he he believed this could be accomplished by denuding both lateral and anterior walls of the vagina, leaving a strip of mucous membrane on the anterior vaginal wall, and uniting its edges to the edges of the wounds made on the lateral walls.

Dr. Grandin thought the object of any operation upon the vagina should be to raise the vagina and uterus in the pelvis. After the operations upon the vagina had been performed the abdomen should be opened and the uterus brought upward and attached to the abdominal wall.

Dr. Bache Emmet believed that if the tissues were so removed the edges of the wound could be attached to the pelvic fascia the chances of permanent cure would be better than by any operation which merely united them in the median line.

Dr. Baldy had formerly followed Emmet's teaching in treating prolapse of the vaginal walls. He now favors the attachment of the uterus to the abdominal wall. None of the operations which had been described would prevent a recurrence of prolapse of the uterus and this prolapse might even be extreme.

Dr. Goffe believed that the best results in these cases would be obtained when the uterosacral ligaments were shortened, the cervix being then thrown upward and backward and the entire direction of the uterus changed. This would prevent the tendency of the uterus to descend.

Dr. Smith proposed the raising of the bladder in the pelvis through an abdominal incision and attaching it to the abdominal wall.

Fibroid Tumors of the Ovary.—Dr. Reuben Peterson, of Ann Arbor, Mich., had found eighty-two well-authenticated cases in the literature of the subject, those only being analyzed in which there was a microscopical report. He had also had two personal experiences. There was no way of differentiating between myoma and fibroma of the ovary, clinically. The disease was relatively a rare one, and its natural history was not well known. These tumors appeared earlier in life than similar growths in the uterus, were more common in married than in single women, and did not affect fecundity. The menstrual flow was increased in some cases, and diminished in others, while the menopause was little affected. The growth of the tumor was rapid in some cases and slow in others. Pain and ascites were present in about half the cases.

Dr. Henrotin thought the ascites might be produced by irritation of the peritoneum by the tumor.

Dr. Currier had seen one case in the practice of Dr. Thomas at the Woman's Hospital twenty years ago. Ascites was present; the tumor was the size of a small orange and perfectly movable.

The Closure of Suppurating Abdominal Wounds Following Laparotomies.—Dr. P. A. Harris of Paterson, N. J., said that in spite of the most elaborate precautions suppuration would sometimes follow the making of a wound through the tissues of the abdomen. This was sometimes due to the irritation of buried sutures of non-absorbable material. The author believed that such a method of suturing should be abandoned. A suture should not be retained longer than from twelve to twenty days. If an abscess developed it would usually make its appearance in from seven to twelve days. A small stitch abscess is of little importance. The author wished to discuss particularly that form of abscess in which the whole wound was undermined, all the tissues from the skin to the peritoneum being implicated. It was better to treat such an abscess as an open wound in which active suppuration usually lasts about one week. His proposition was to curette away all the granulation tissue from such a wound and then reunite it as if it were a primary operation. Such a step would often be followed by primary union. The steps of the operation were as follows: The wound was cleansed with strong bichloride solution, then curetted, then irrigated with bichloride solution followed by salt solution, after which *through-and-through* mattress sutures of wormgut were passed. Four sutures were ordinarily used, each of which, except the first, interlocked with the one which went before it. After the sutures had been passed the wound was again irrigated with the bichloride solution followed by the salt solution. The operation should not be performed until suppuration had nearly ceased, and the sutures should be removed in from twelve to fourteen days.

Dr. Cleveland thought there were very few sources from which a wound might be infected from within or from without. He was in the habit of making a rather long incision, covering the intestines with sterile gauze and closing with one series of through-and-through wormgut sutures, followed by a second series in the intervals between those which had first been passed, which, however, went no deeper than the fascia covering the recti muscles. Suppuration was sometimes due to the use of chromicized catgut in closing the fascia. The fascia should not be too tightly closed, its nutrition being inferior to that of the other tissues. He was not in the habit of reclosing a wound which had suppurated; he stimulated it with balsam of Peru and approximated its edges with plaster. He thought that in all operations rubber gloves should be worn.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held May 7, 1902.

N. E. Brill, M.D., Chairman *pro tem.*

Cesarian Section for Fibroid Tumor Complicating Delivery.—Dr. A. Brothers reported the following case and exhibited the specimen: The patient was a married woman, aged forty, with a negative family history. She had previously given birth to three children after normal labors. Three days prior to admission to hospital she had been taken with labor pains at full term. A midwife was in attendance, but labor being tedious a physician had been summoned and had found the funis protruding from the vagina for five or six inches and in a gangrenous condition. A tumor was also discovered which seemed to be the cause of the dystocia. Dr. Brothers was then summoned. The patient had a vaginal temperature of 103° F. and a pulse of 130. The cervix was found wedged against the symphysis pubis and dilated laterally sufficiently to admit three fingers, though anteroposteriorly only one finger could be introduced. Above the brim of the pelvis the head of a dead child could be felt. The whole pelvis seemed to be filled with a large, hard tumor, which also occupied the lower segment of the cervix uteri. The septic state of the woman and the futile attempts which had been made to dilate the cervix led him to advise immediate operation in the Beth Israel Hospital. Immediately after her admission there a Cesarian section was done without any special difficulty. On opening the uterus a dreadful stench was emitted. The fetus and placenta were removed and hysterectomy was performed, with drainage from below. Through-and-through silkwormgut sutures were employed in this case. The patient's temperature after the operation immediately dropped to the normal and the pulse became of fair quality. On removing the sutures on the ninth day there was apparently primary union. The next day, in a fit of wild delirium, the woman tore open the abdominal wound, but of this the house surgeon was not informed until the following day, when he found that the wound was gaping and the intestine protruding. When seen by Dr. Brothers an hour or two later the temperature had risen for the first time since the operation to 102° F. The wound was again sutured. After a day or two the pulse and temperature fell to the normal, and after that the patient did well, except that even after the secondary suturing a portion of the wound failed to unite.

A New Rotating Torsion Clamp.—Dr. J. J. Nutt exhibited this simple instrument. It can be readily and quickly applied and can be easily taken apart for thorough sterilization. With such an instrument it is necessary to use ligatures on only a few of the larger vessels.

Study of Malignant Endocarditis.—Dr. Frank W. Jackson presented a paper with this title, based on seventeen cases. He defined malignant endocarditis as a septicemia with a local lesion involving the endocardium of the valves, or the ventricular endocardium, or both. It should be noted that the degree of the endocarditis bore absolutely no relation to the severity of the symptoms. He thought it would be well to regard this group of cases as instances of septic disease with a special localization of the microörganisms on the endocardium itself. In a considerable number of cases of acute endocarditis bacteria had been found in and about the valves, and they had been proved to stand in a causative relation. A lesion of the endocardium on the valves or elsewhere predisposed to the lodgment there of bacteria after the latter had once gained access to the blood. Bacteria similar to those on the valves might be found in the blood. The mitral or the aortic were usually involved, though the tricuspid and pulmonary valves were occasionally affected. The disease was found in both sexes, and it was much more common under forty years of age. A history of rheumatism was found in many cases; in some of his cases the disease had been looked upon as rheumatism alone.

Symptomatology.—The symptomatology of the obscure cases was totally different from that of the uncomplicated ones. The most important physical signs were the murmur, the enlargement of the spleen and the presence of purpuric spots. The murmur might be situated anywhere, at the apex, at the base, or at an irregular location. A loud musical murmur was, of course, characteristic of vegetations, but vegetations might be associated with a very feeble murmur. In many of his cases the enlargement of the spleen had not been palpable. Many of the cases showed no purpuric spots whatever. The septic appearance of the patient was of great importance, probably being of greater aid to the experienced observer than any other of the physical signs. A large number of the cases showed emaciation. It had been claimed that examination of the eye would show hemorrhages into the retina in these cases. Of the symptoms, the fever was of special importance. The characteristic temperature varied between a point near the normal up to 105 or 106° F. Chills and sweating were usually present, but not always. Anemia, as evidenced by the appearance of the patient and by the blood-count, was usually present. In many of the cases there were the ordinary symptoms of heart disease and failure of compensation. Almost all of his cases had exhibited a leucocytosis, though in a number of instances it had not been considerable. Organisms, if found in the blood, were, of course, helpful in making the diagnosis. In two of his cases there were cerebral symptoms only in addition to the fever. In one instance there was a history of convulsions. In a number of cases active delirium had been a prominent feature throughout the disease. At the present time one should not mistake malignant endocarditis for malaria for a period of more than two or three days, because in this time one could determine the absence of response to the administration of quinine and the absence of the malarial plasmodium from the blood. The differential diagnosis from miliary tuberculosis was, of course, difficult. Persons with malignant endocarditis look more seriously ill than do those suffering from miliary tuberculosis. Malignant endocarditis might be very readily mistaken for typhoid, as continued fever with prostration might be the sum total of the symptomatology of a case of malignant endocarditis. In cases of simple endocarditis there was rarely a high fever for more than a very few days. As to the duration of a malignant endocarditis, the speaker said that his cases had lasted from two or three weeks to several months. The disease was looked upon in this vicinity as a very rare affection in private practice, and yet he was inclined to think that it was often overlooked. He was also disposed to think that recovery occasionally took place from the acute infection, although he had no proof of its occurrence.

Analysis of Cases.—In 15 of his 17 cases there were autopsies. He had classified these cases arbitrarily according to symptoms, as follows: (1) Sepsis with heart symptoms, 3 cases; (2) sepsis with murmur and without heart symptoms, 2 cases; (3) cardiac symptoms with fever and a fairly clear diagnosis, 1 case; (4) cardiac symptoms with fever and an uncertain diagnosis, 4 cases; (5) fever without physical signs or heart murmurs, and thought to be typhoid, 1 case; (6) sepsis following pneumonia, 1 case; (7) thought to be rheumatism, 2 cases; (8) fever with cerebral symptoms and a heart murmur, 2 cases; (9) sepsis followed by heart murmur and cardiac symptoms, 1 case. These cases, when studied in detail, suggested the question as to whether it was wise to retain the term malignant endocarditis.

Dr. A. J. Lartigau said that one could hardly discuss this subject without a clear understanding of what was meant by malignant endocarditis. It was now granted, he thought, that every vegetative endocarditis, whether or not associated with severe clinical symptoms, was connected with the presence of bacteria. All these vegetative forms of endocarditis, whether or not associated with well-marked ulceration, were shown by the microscope to be always associated with ulceration. If the term malignant endocarditis were to be limited only to the gross ulcerative forms, then, of course, a large group of simple forms of vegetative endocarditis would be eliminated. In a discussion in 1899 before the Section on Pathology of the British Medical Association the term infectious endocarditis was adopted as synonymous with malignant endocarditis, and including all forms of bacterial endocarditis of a vegetative character, whether or not associated with severe clinical symptoms. The finding of the micro-organisms must depend largely upon the technic employed and the nature of the organisms present. The simple rheumatic forms of endocarditis were probably bacterial, although up to the present time the cultures were negative because the organisms of rheumatism were as yet unknown. The negative bacteriological examinations of the past could not be relied upon very much. He agreed with Dr. Jackson that the lesion should be regarded as a septicemia with a local septic process, sometimes associated with severe clinical symptoms and sometimes not. The severity of the clinical symptoms in some of the cases might be explained by the virulence of the organism. The experience of most bacteriologists was that the streptococcus was responsible for most of the vegetative forms, whether of the simple variety or of the so-called malignant types. The staphylococcus pyogenes aureus and then the pneumococcus came next in frequency. The statement had been made by one observer that endocarditis due to staphylococcus pyogenes aureus was characterized by unusual ulceration of the valves, but his own experience did not support this statement. It had been recently stated by one or two observers that the gonorrheal form of endocarditis affected the right side of the heart more than the left, but this had not been his own experience. According to the literature, about 75 per cent. of the undoubted cases were on the left side, and affected chiefly the aortic valve. The clinical symptoms in long-standing cases might be explained by the fact that at first there was a septicemia, and later on a disappearance of the microörganisms from the blood and localization on the valve. With the appearance of the microörganisms again in the blood there would be a high rise of temperature preceding the fatal termination.

Dr. Stern said that in the case supposed to be typhoid the Widal reaction had been obtained in a dilution of one in ten, but not in one in twenty. In one case in which gonococci were found in the blood, and there were lesions of the pulmonary and mitral valves, the duration of the disease was measured by months, and it was thought that the patient was now on the road to recovery.

Dr. R. J. Wilson said that in one of the cases in which he had found the gonococci it was almost by accident that he had found the organisms. The failure to find them in many cases was due to a neglect to vary sufficiently the cultures and also the temperature. Within the last year or two he had made it a rule to make anaerobic cultures of blood in addition to the others. The general opinion seemed to prevail that broth constituted the best medium, but his own experience was that better results were obtained from the use of solid media.

Dr. N. E. Brill said that it seemed to him that the time had come to determine under what category malignant endocarditis should be placed. According to his conception of malignant endocarditis it was a bacterial affection, pure and simple, associated either primarily or secondarily with a localized activity of these bacteria on the endocardium and especially on the valves. Before bacteriology had assumed its present rank physicians had learned to distinguish between two conditions—a simple endocarditis associated usually with rheumatism and a septic condition, the result of a vegetative endocarditis, and associated with embolic processes in various viscera. To the latter class the term malignant endocarditis had been applied. It had been his fortune in the past two months to have seen five cases of malignant or infectious endocarditis in the wards of Mount Sinai Hospital, three in the service of Dr. Manges and two in his own service. In each of these cases an attenuated streptococcus had been isolated from the blood. The presence of fever and minute and sparsely scattered petechiæ had led to the making of the blood-cultures. The bacteriological findings had been confirmed in each case by a second culture. One patient had died, but no autopsy had been allowed; the other cases were still in the hospital. One of the patients had been admitted with a history of rheumatism. A very few petechiæ being found, a blood-culture was made; the temperature did not rise until a day or two later. In another case there was a history of an acute attack of rheumatism ten years before. On admission there was an uncompensated mitral lesion. After two weeks in the hospital fever and petechiæ appeared and the blood-culture showed the presence of the streptococcus. There had been extreme exacerbations of temperature for about five weeks, and the murmurs had not changed. Three days ago there was a sudden attack of pain over the spleen and the diagnosis of infarct of the spleen was readily made. Dr. Brill said that about one year ago he had presented to this society a man who had come into the hospital with a temperature of the type of a tertian malaria. There were numerous joint symptoms also present. From this case also the streptococcus had been isolated. On admission to the hospital, there was a systolic murmur, which disappeared before the patient was discharged. This case had been regarded as one of rheumatism. Various observers had shown that in a large number of cases of rheumatism, an attenuated streptococcus had been isolated, and the same had occurred in cases of tonsillitis. Cases of malignant endocarditis had been reported by excellent observers in which no etiological factor had been discovered. It was probable, the speaker thought, that careful inquiry might have elicited a history of prior attacks of tonsillitis.

BOOK REVIEWS.

Practical Medicine. By F. Mortimer Lawrence, A.M., M.D., Assistant in Practice of Medicine, Hahnemann Medical College; Chief of Medical Clinic, Hahnemann Hospital Dispensary, Philadelphia. Boericke & Tafel, Philadelphia.

If one would seek to find the gradual closure of the gap that separates the Hahnemannian doctrinaire from the workers in the broad sweep of general regular medicine, a perusal of this small work will prove instructive. The work is quite like one of the numerous small manuals which it is the delight of publishers to vomit forth, because they are cheap, and medical students green, gullible and very desirous of passing their examinations. It differs only slightly in the optimistic use of countless drugs for countless minor symptoms, mostly the so-called homeopathic specifics, which have, however, been in use for the most part almost since the days of Hippocrates.

The book is comparatively up-to-date and might have been taken from Osler, Strümpell, Tyson or other modern manuals and would have been better if these authors had been followed more conscientiously and openly and less covertly.

Short Talks with Young Mothers on the Management of Infants and Young Children. By Dr. Charles Gilmore Kerley, M.D. G. P. Putnam's Sons. New York and London.

We have had of late a number of books addressed to mothers on the care of children, and yet there seems to be room for this little work of Dr. Kerley. Its inscription to Dr. L. Emmett Holt might well be taken almost as a guarantee that the book would be thoroughly practical and not meddlesome. These notes from the index of the subdivisions of the word bath are suggestive of the practical usefulness aimed at: Bath—bran, brine, in hot weather, mustard, soda, starch, tub for fever, basin for fever and bathing.

There is an excellent chapter on taking cold that emphasizes particularly the necessity for the protection of the child's almost bald little head. The common idea that a child's head should be kept cool is characterized as prone to occasion carelessness as to the head dress. During the colder months a skullcap made of thin flannel is suggested, to be worn in addition to the regular outing cap. On the other hand the prejudice that would attribute a cold to the child's bath is deprecated. Dr. Kerley has never known a cold to be due to the bath.

There are some excellent simple directions with regard to the care of children suffering from convulsions, from colic and from constipation. As a whole the little work of 250 pages seems very commendably written for its purpose of giving useful and yet not meddlesome instruction to the mothers of the present generation. Physicians could not do better than have the mothers and caretakers of their little charges instructed in such a simple, facile way.

Mosquito Brigades and How to Organize Them. By Ronald Ross, F.R.C.S., D.P.H., F.R.S., and Walter Myers, Lecturer in Tropical Medicine, Liverpool School of Tropical Medicine; Major, Indian Medical Service, Retired. Longmans, Green & Co., New York; George Philip and Son, London. 1902.

Since the mosquito has been found to be the means of communicating malaria, yellow fever and elephantiasis from one person to another, the extermination of this insect has become an important hygienic problem, especially in tropical countries, where all three diseases abound. This small book, written by one who has personally directed several well-organized expeditions against the mosquito is intended to show how much good can be derived from even a small amount of well-directed energy. It is commonly thought that the problem is a useless one on account of its magnitude, but the misconceptions upon which this belief is founded would be largely eradicated by a wide circulation of this book. The principles involved are clearly enunciated and detailed directions are given in a manner that would enable even any layman to take up the work and secure satisfactory results on a small scale. The book also severely criticizes the inactivity of the British sanitary and medical services.

Philadelphia Hospital Reports. Edited by Roland G. Curtin, M.D., President of the Medical Board, and Daniel E. Hughes, M.D., Chief Resident Physician. Volume IV., 1900. Maurice H. Power, 1901, Philadelphia.

The present volume of the Philadelphia Hospital reports contains a number of interesting papers, the subject-matter of which will, we hope, find a wider circulation than it is liable to reach in this volume. Some of the articles are not only interesting, but clinically important. Dr. Curtin's phthisis following traumatism and certain of Dr. Dercum's articles on unusual forms of lead-poisoning, or on the relation of the spacing sense to astereognosis, are of this kind. In general the articles on nervous diseases are of very special interest. Dr. Hendrie Lloyd writes on cerebrospinal syphilis with characteristic multiple lesions and his interne publishes for him a description of a case of cerebellar tumor.

We doubt if these contributions adequately represent the work of "Blockley" and if hospital reports do not they lose much of their *raison d'être*. It would seem that all work published from the hospital should appear here, even though it may have been previously published elsewhere. At least abstracts of all work should be given so as to make the medical world realize just what is being done.

The Care of Destitute, Neglected and Delinquent Children. By Homer Folks, Commissioner of Public Charities of the City of New York. The Macmillan Company, New York.

Aside from a few pamphlets in reports of Charities Aid Societies and a number of superficial essays, this extremely important aspect of the social superstructure of modern times has been almost entirely neglected by the careful and competent observer. In this contribution there is much to remedy this reproach.

Although a small manual, it contains much information written in an attractive manner and from the standpoint of an observer of large possibilities.

The classification of a broad line of study as presented by the author would deal with institutional care of destitute adults; defectives; the insane, feebleminded and epileptic; hospitals, dispensaries, and nursing. The treatment of criminals; destitute, neglected and delinquent children; care and relief of needy families; supervisory and educational movements; preventive and constructive philanthropy.

The present volume is limited to the consideration of the care of children who have been removed from their earlier environment and from parental control, and the direction of whose lives and the burden of whose support have been directly assumed or provided for by public authorities or private charity.

The work is largely historical. It sketches in broad outlines the rise and development of the philanthropical movements from the beginning of the nineteenth century. Further, it contains many hints and suggestions of a practical character. The book is one to be most favorably commended to all classes who come into intimate relation with the questions involved. To those who stand on the outside and scoff at philanthropic endeavor in the abstract, this manual is a necessity. It would bring about a change of heart much to be desired.

Atlas and Epitome of Otology. By Gustav Brühl, M.D., of Berlin, with the collaboration of Prof. A. Politzer, M.D., of Vienna. Authorized translation from the German. Edited by S. MacCuen Smith, M.D., Clinical Professor of Otology, Jefferson Medical College, Phila., etc. With 244 colored figures on 39 lithographic plates and 99 text illustrations. 1902. Philadelphia and London, W. B. Saunders & Co.

This is probably the best in every particular of all the volumes in that handy, useful and excellent series of Hand-Atlases published by W. B. Saunders & Co. It is a compact, beautiful and in every way pleasing volume of about 500 pages divided into two parts, the first of which is devoted to plates and illustrations which we have not seen excelled in any work of similar size and cost. In fact, we are safe in saying that, for compactness, cheapness and excellence there is nothing in otological literature that surpasses these plates. The explanatory text also is given in good black type and is full enough in detail of history and description to be helpful as clinical material without being bulky and tedious.

The second division of the book comprises 281 pages of text with a completeness and crispness delightful to find associated in a work like this. The illustrations in the text are rich in new devices to contribute to clearness of teaching. The matter also is fresh and recent, bringing the reader down to the latest knowledge available, as, *e.g.*, in the attention given to lumbar puncture in connection with meningitis. The great gain in the clinical material which the author has made by combining his own with that of the veteran Prof. Politzer makes the book an indispensable addition to the ear specialist's library.

The Principles of Bacteriology. A Practical Manual for Students and Physicians. By A. C. Abbott, M.D., Professor of Hygiene and Bacteriology and Director of the Laboratory of Hygiene, University of Pennsylvania. Sixth Edition, enlarged and thoroughly revised, with 111 illustrations. Lea Brothers & Co., Philadelphia and New York, 1902.

Professor Abbott's Manual of Bacteriology has reached its sixth edition in less than ten years. The reason for its popularity is not far to seek. Originally concise, yet complete, advances in bacteriology have always been carefully followed and, as soon as discoveries were confirmed, they have found their proper place for the student's consideration in some part of the volume.

The present volume contains additions especially with regard to the important subjects of epidemic cerebrospinal meningitis and dysentery. Noteworthy original observations have been made in the last three years. Another important addition of suggestive value and great present-day interest is the description of the bacilli that resemble the bacillus tuberculosis and especially those that retain the stain when acted upon by acids or alcohol. This group has heretofore usually been considered as belonging among the true tubercle bacilli. In a word for a concise up-to-date review of bacteriology the student or the practitioner can find no better work of its size than that of Professor Abbott.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine, Surgery, Neurology, etc., by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, U. S. A. With regular correspondents in Montreal, London, Paris, Leipsic, and Vienna. Volume I., Twelfth Series, 1902. Philadelphia, J. B. Lippincott Company, 1902.

The present volume of the "International Clinics" contains a new and very interesting feature. This consists of biographical sketches of two eminent living physicians. The subjects selected to begin the series are Dr. S. Weir Mitchell of Philadelphia and Dr. John A. Wyeth of New York. Short pithy sketches, well illustrated and attempting in brief to catch the secret of the man's success, are likely to be of very general interest.

About 105 pages of the present volume are taken up with the progress of medicine for the year 1901. As every medical journal, be it weekly, bi-weekly or monthly, now affects to give a review of the progress of medicine, the reason for this feature in the "International Clinics" is not very clear. Over one-third of the present number is taken up with this conventional material which contains an account of the celebration of the eightieth birthday of Virchow and the death of President McKinley.

The clinical department is quite as interesting and practical as usual. Dr. Charles F. Simon of Baltimore has an excellent article on the significance of basophilic granules in red corpuscles with special reference to their occurrence in chronic lead-poisoning. It is, however, rather too long, considering its special character, to appear here. Dr. Hemmeter of Baltimore has a thoroughly practical article on gastro-intestinal autointoxication. Dr. Arthur B. Meigs of Philadelphia treats of the use of opium in daily practice. Dr. Boas of Berlin has a very suggestive clinic on the treatment of habitual constipation. Dr. Greig of Edinburgh, Professor Hallopeau of Paris, Dr. Rodman of Philadelphia and Dr. Boissard of Paris have interesting practical contributions.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

The Operations of Surgery. By Drs. W. H. A. Jacobson and F. J. Steward. Fourth Edition. 2 vols. 8vo, 727 and 776 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Report of the Health Officer of the District of Columbia. 1901. Washington.

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ORIGINAL ARTICLES.

ILLUSTRATIVE ERRORS AND DIFFICULTIES IN THE DIAGNOSIS OF AFFECTIONS OF THE BILIARY SYSTEM.[1]

BY C. L. GIBSON, M.D.,
OF NEW YORK;
ATTENDING SURGEON TO ST. LUKE'S AND TO THE GENERAL MEMORIAL HOSPITAL.

THE possibilities offered by the upper right quadrant of the abdomen in lesions, diagnosis and therapeutics are almost infinite. Here we have grouped, wholly or in part, the liver, the biliary apparatus, the stomach, the pancreas, the kidney and the large and small intestines; and in establishing a diagnosis of disease in any of these viscera we must consider the possible confusion with morbid processes in its neighbors. Such confusion is not limited to its immediate surroundings when we remember that abscess of the liver may be mistaken for pulmonary tuberculosis, or cholecystitis for appendicitis or salpingo-oöphoritis.

Besides the recognition of the viscus involved, we have to deal also with the nature and possible site of the disease. Of all these structures none offers richer possibilities than the biliary apparatus. It is only of recent years that what may be termed a popular or general knowledge of their pathology has existed, although perhaps well recognized by the limited number of frequenters of the postmortem room. These observers, however, saw usually only the end of the story. It is rather to the more extensive operations practised in the past decade that we are indebted for the exact knowledge concerning actual processes *in vivo* and more especially regarding their frequency and significance.

The lesions of the biliary apparatus present conditions for and against successful diagnosis which offer fascinating possibilities. Certain symptoms and certain physical signs may indicate the nature and site of the lesion with a directness imitated only by certain lesions of the spinal cord. An individual symptom or physical sign alone may reveal the nature or the site of the lesion or both. On the other hand, we may suffer from a plethora of the signs and symptoms which introduce contradictory elements. All these factors therefore call in the highest degree for that most important feature of diagnostic success—the proper weight to be placed on the individual symptom or sign.

All my experience in this line of work convinces me of the marked need and importance of a good history. The majority of these cases are seen in consultation and one is required to form an opinion from the facts as presented and from the obvious physical signs. Under such conditions one is very often, and quite properly, tempted to rely on the evidence which one personally elicits, and to cut one's self off from that very important summing up of the relative weight of the individual elements. In trying to analyze the causes of deception or error in my past experience, I am inclined to think that many of these cases could more clearly have been defined by more prolonged personal observation and maturer consideration.

The factor which has as often perplexed me as any other is the identification of a tumor in the region of the gall-bladder. Clinically, we expect to find an evident enlargement of the gall-bladder principally in two conditions; first, the so-called hydrops of the gall-bladder when the exit to the secretions of the gall-bladder is hindered by an obstruction of the cystic duct, provided the walls of the gall-bladder be sufficiently distensible; and, secondly, in compression of the common duct from without, as in tumor of the pancreas. The other sources of enlargement, such as empyema of the gall-bladder, are rare, and yet it is the general custom to lay considerable stress on the presence (or supposed presence) or absence of the gall-bladder.

I have notes of four cases in which a tumor of this region gave rise to confusion.

My first gall-bladder operation was the sequel of a proposed nephrorrhaphy. A young woman with a supposed floating kidney had been for some time under the observation of a very able colleague. Persistent, though rather vague, gastric disturbances and pain seemed to call for an attempt at relief. The supposed kidney (right) was easily palpable considerably below its normal position, corresponded to that viscus in shape and size, and could be easily reduced into the loin. On making a vertical incision posteriorly, the kidney being made prominent in the flank, the subperitoneal fat was separated under the impression that it was the fatty capsule of the kidney, and the peritoneum was entered, revealing an enlarged freely movable, distended gall-bladder. Its contents—clear fluid, six large stones and a stone impacted in the neck of the cystic duct—were easily evacuated and the gall-bladder sutured. An uneventful recovery followed

The tongue-shaped enlargement of the right lobe of the liver, which overlies the gall-bladder and often seems to be an accompaniment of gall-stones (the so-called Riedel lobe) has twice led me astray.

Male patient with genito-urinary tuberculosis. Castrated on the right side a few weeks previously by a colleague, he developed a perceptibly increasing swelling in the right kidney region.

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[1] Read before the Harvard Medical Society, of New York, Feb. 22, 1902.

Symptoms of suppuration present. Supposing it to be a pyonephrosis or a perinephritic abscess resulting from infection originating in the stump of the spermatic cord, a lumbar incision was made. Without opening the peritoneum, I recognized this liver offshoot (the *schwürer Leber* of the Germans) and its probable syphilitic origin. The kidney was normal. The "tumor" quickly disappeared under vigorous antisyphilitic treatment.

A woman, aged sixty-five years, had had at odd times for nearly a year irregular chills and temperature elevations. She had a palpable tumor, somewhat sensitive on pressure, in the right flank. There was some pus in the urine. Several surgeons agreed on the diagnosis of suppurating kidney. On making a nephrotomy incision a normal kidney was found, and the mass previously felt turned out to be an irregular shaped lobe of the liver. Having had decided suspicions relative to the possibility of gall-stones, I palpated through the intact peritoneum and thought I could indistinctly feel a stone, though where it was I could not determine. I made an anterior incision, investigating as well as I could the gall-bladder and ducts, but without result. The exploration was difficult and unsatisfactory and had to be cut short on account of the patient's bad condition. She recovered promptly, but the irregular chills persisted. Some months later she became jaundiced.

A man, aged forty-four years, had had for a year irregular attacks of pain radiating from the right hypochrondrium and attended by gastric disturbances. Coincident with these attacks of pain he occasionally noticed the transitory appearance of a "lump" in the region of the gall-bladder. A colleague of this city saw him twice, easily recognizing the tumor the first time, but finding it somewhat smaller, though perfectly distinct, a day or two late. When he saw the patient with me for the third time he noted that it was still less prominent and that it receded under the liver. This observation I was able to confirm, feeling, as I thought, on deep pressure, a rather elastic tumor about the size of a small orange. History, physical signs and course pointed very strongly to an intermittent hydrops of the gall-bladder from obstruction of the cystic duct by stone or kinking. On exposing the gall-bladder it was found normal, as was also the rest of the biliary tract. The various neighboring viscera were investigated without result. Finally, in a situation considerably below and outward from where it had been originally located, a large adenocarcinoma of the colon was found. We came to the conclusion that we had all been deceived in regard to its fluctuation in size by its varying relation to the abdominal wall, probably depending on the relative degree of intestinal distention.

One of the most important features in these operations is to demonstrate the entire freedom of the biliary tract. Ever since biliary surgery has been in vogue the overlooking of a gall-stone in the common duct has been a common error, as only part of the gall-stones lodged in the common duct have been removed. However, gall-stones may coexist in the duct as an accidental complication of a more serious form of obstruction, such as is produced by compression from without. It has been my aim of late always to give as much attention to this point as to the condition of the duct.

An additional source of deception is illustrated by the following case:

Man with typical history of chronic impaction of gall-stones with remissions. At the time of operation he had slight jaundice. Stones were removed from the gall-bladder and common duct; drainage of both. Persistent biliary fistula, entire absence of bile in the stools. Intercurrent complications. Death in four weeks. At the autopsy there was found a small carcinoma of the distal end of the duct which had escaped detection at operation. I doubt if it could have been felt with any certainty as I must have palpated it without recognizing it, for I sought in this case, as always, to feel for a possible impaction of a stone in the ampulla of Vater through the overlying duodenum. The actual passage of a probe is such a doubtful quantity that I am no longer disturbed at its failure, generally contenting myself with passing a metal *bougie à boule* into the duct. If a stone be lodged below, the impact should be early appreciated. I may add, as an illustration of the ease with which one may deceive one's self as to the passage of a probe into the intestine, the experience of one of my colleagues. He had been telling me how plainly he could feel the probe passing into the bowel in a certain case. Later, at the autopsy, the pathologist was at first unable to duplicate this maneuver, only succeeding in passing a fine bristle after removal of the parts.

Jaundice usually presupposes a process directly involving the common duct, and yet in two instances I have seen a gall-bladder and its contents by their weight and pressure impinge on the common duct, the symptoms being entirely relieved by emptying the gall-bladder.

Medical students of to-day seem to understand quite clearly the type of *irregular* chills and fever so frequently observed and so characteristic of chronic impaction of a gall-stone in the common duct. My personal observation leads me to believe that this feature seems to be generally overlooked in practice until jaundice makes its appearance.

Jaundice may be very slight, transitory or unnoticed in certain cases. The patient may simply have chilly or creepy sensations and never a frank chill. The temperature variations may be overlooked unless systematically recorded. The absolute irregularity of the process makes the picture fairly typical. Yet I find that most of these patients have been treated a long time for malaria, although real indications of the disease were not present and scientific attempts at proof were wanting or not undertaken. I find it wisest in my routine surgical practice to assume that malaria is not present until its existence is proven, as its characteristic feature of chills serves as a blind for other diseases, such as pyemia, puerperal sepsis, kidney and urethral disease, and cholelithiasis.

Of late attention has been called to the apparent analogy between the gall-bladder and the appendix, and some surgeons have commented on the occasional difficulty of distinguishing between these acute inflammations. The analogy does seem to exist as far as the tendency to recurring inflammation is concerned. I have only two experiences on the diagnosis.

I saw a young boy with a supposed appendicitis with rather urgent symptoms. No mass could be felt and tenderness was diffuse and best localized between the cecum and the hepatic flexure. A small incision over the area of the maximum tenderness showing no inflammatory process in the the iliac fossa, the incision was enlarged upward to permit of exploration of the gall-bladder, the next and most probable, though from other factors improbable, anatomical source. The gall-bladder was uninvolved and the real cause proved to be an interesting condition of non-descent of the cecum, the gangrenous appendix overlying the lower pole of the kidney.

The second case (previously reported) is that of a girl of twenty-two supposed to have appendicitis, whom I watched for two days in the hope of better understanding the condition; there were diffuse right abdominal tenderness, temperature elevation, but rather mild constitutional symptoms. Finally, I determined that the condition was due to one of two things, cholelithiasis or appendicitis. I made an incision midway between the two organs and there came into view under the overlying liver a very large, chronically inflamed gall-bladder, then in a state of acute exacerbation and filled with large stones. Three months previously this young woman had come under the care of another operator and underwent a double salpingo-oophorectomy. I have had doubts whether these two conditions may not have been confused, because for various reasons I had the impression that her gall-bladder condition had existed for some years.

Of the affections characterized by jaundice, the diagnosis generally lies between the internal obstruction of the common duct by stone or of its compression from without, chiefly from pancreatic disease. Ordinarily the diagnosis can be easily made. In obstruction from without the diagnosis generally depends on the progressive *never remitting* jaundice and on the presence of the enlarged gall-bladder—Courvoisier's law—and on the absence of the characteristic features of stone, history of colic, fluctuating jaundice, and typical temperature elevations. It must be borne in mind, however, that a gall-stone impaction may lack some of its characteristic features, or the two conditions may coexist. Again, the obstruction from pancreatic disease may present certain or striking points that may detract our attention, as, for example, in the following case:

I kept an elderly woman under observation until I felt sure of my diagnosis—obstruction from carcinoma of the head of the pancreas. She was emaciated, there was jaundice of a marked but not extreme degree, and an enlarged gall-bladder could be felt. Suddenly, within twenty-four hours, her jaundice increased markedly and continuously. This sudden change shaking my belief in my diagnosis, I operated, expecting to find a stone. A carcinoma of the head of the pancreas was found. Cholecystenterostomy was performed with a gratifying symptomatic cure, the patient living in a pretty comfortable state of health for nearly a year.

Our knowledge of pancreatic disease is becoming better defined, and I think I may claim largely from the more systematic surgical methods of operative exploration. We no longer rest content with the diagnosis of compression of the duct from without, but try to differentiate between relievable and non-relievable conditions. Much work yet remains to be done in this direction, and I feel at present unable to draw a well-defined picture of the several types.

Last year I had under my care a woman, aged thirty years, with fairly pronounced jaundice and a palpable distended gall-bladder. Fever and other typical evidences of gall-stone were wanting. She had occasional periods of epigastric pain and rather vague gastric disturbance. On the whole, I rather favored a diagnosis of gall-stone. I was, however, quite prepared to find a tumor of the pancreas, although the patient's age lessened the probability. Under ether, a tumor corresponding to the position of the pancreas could be felt. After I opened the abdomen and reached the pancreas through a slit in the transverse mesocolon, there was seen what I then judged to be not a tumor but a diffuse hyperplasia involving the whole organ. A subsequent microscopical examination of a small fragment confirmed the clinical diagnosis of interstitial pancreatitis. Cholecystenterostomy was performed, and the patient has greatly improved in health and is entirely free from her previous symptoms.

I trust that I have not conveyed an exaggerated idea of the difficulty of diagnosis in these affections, and still less of their frequency. On the other hand, the scattering illustrations I have related do not begin to exhaust the many problems that are encountered. One should not be content with the exposition of difficulties, but rather to show how they may be anticipated and overcome. Such an attempt, however, is not within the province of the present paper. Practical experience is, of course, the best educator; one can also improve one's self vastly by mentally reconstructing past experiences and by seeking to analyze the sources of difficulty and error. Much that is written on the subject requires a special knowledge for its proper appreciation. I think I have been most helped in theoretical experience by a close study of cases clinically described, especially those very useful accounts given by Kehr of Halberstadt of his very ripe experience.

Aside from the mental discipline and the very natural ambition to perfect one's work, there is a tremendously practical side in the attempts at refinements of diagnosis and decidedly influences the manner of the surgeon's technical work. An operation is not best undertaken nor conducted on the principle "that there is something that needs operation," that something to be defined by the results of exploration. The judicious operator will prefer to map out a campaign based on surgical strategy. He will have formulated the indications to be met in the order of their importance and greatest probability. He will thus attack directly on this main line. Should this not yield the hoped-for results, he passes consistently to his second line of attack, and so on in a methodical and well-ordered way. This manner of eduction and practice will give the same gratifying results in surgery as does such conduct in every walk of life.

THE NON-HEREDITY OF ACQUIRED CHARACTERS.

BY LAWRENCE IRWELL, M.A., B.C.L.,

OF BUFFALO, N. Y.

I HAVE more than once pointed out[1] that there is at present no proof that characters acquired by the individual during lifetime are hereditary, although congenital characteristics undoubtedly are, and that the so-called evidence is open to very serious objections. For example, Dr. Talbot of Chicago, in his work upon Degeneration,[2] quotes Dr. Wolf of Baltimore as saying that out of 600 Jewish boys "two per cent. were born partially circumcised, and 6 per cent. were born with a short prepuce." Such facts and figures as these are valueless for the purpose of showing that *complete* circumcision is *usually* transmitted. Moreover, non-Jewish boys are occasionally born without a complete prepuce, which is evidence that congenital variation is the order of the day.

I shall deal with Brown-Séquard's experiments later, but I may mention that in the *Lancet* of March 6, 1897, Professor Ray Lankester wrote that "recent experiment and inquiry have raised considerable doubt" as to their accuracy. I gladly admit, of course, that the opinion of competent investigators is divided upon this question, and I know very well that there are men of eminence upon both sides. In spite of this, I believe that the view of the late Professor Huxley will interest some readers, and I quote an excerpt from a letter written by the great biologist to Mr. Platt Ball, dated October, 1890. "I absolutely disbelieve," said Mr. Huxley, "in use-inheritance as the evidence stands. Spencer is bound to be *a priori*—his psychology goes to pieces without it." ("Life and Letters," Vol. II., p. 268.)

It seems to me most unfortunate that physicians are unwilling to make themselves familiar with the subject of heredity, for upon the correct interpretation of this problem depends to a great extent the future of the human race. Nevertheless, it is undeniable that the average medical man does not even understand the terminology used by those workers whose efforts are directed toward the unraveling of biological phenomena. From personal experience, I can assert with certainty that a very large number of physicians consider that the words "variation" and "modification," so often used by zoölogists, are synonymous. Perhaps, after all, medicine is more of an art than a science. Sulphate of quinine is good for malaria; hydrargyri chloridum mite for torpid liver; trional for insomnia. Man is, no doubt, the highest animal, but the world refuses to consider the problems of heredity as applied to him, and they are on that account left to the zoölogist and the botanist. In the meantime the human race has begun to degenerate, and degeneration would be much more in evidence than it is if it were not for the beneficent process of natural selection, which removes from this planet large numbers of the congenitally "unfit" before they have reached the age when they are capable of reproducing their kind.

I think I am justified in complaining that in quite a number of books written by physicians for non-professional readers the doctrine of neo-Darwinism is not even correctly stated. Before me is "Sanity of Mind," by Dr. D. F. Lincoln, of Boston. From its "introductory note," I learn that Dr. James J. Putnam and Dr. Mary J. Jacobi have both read and criticized the manuscript. Yet on page 29, I read: "The modern student of heredity cannot fail to be confronted with the recent doctrine of Weismann, who denies the possibility of the inheritance of acquired traits. If I do not mistake his position, he intends to deal with normal organisms. Cases which depend on defect of constitutional vigor would doubtless not be claimed as coming under his prohibition." There is only one way by which Dr. Lincoln could by any possibility have arrived at this unwarrantable conclusion, and that is by neglecting to read what Weismann has written. Had he read the "Essay on Heredity," published in 1883, the "Continuity of the Germ-plasm," etc., published in 1885 (especially p. 171), or the "Supposed Transmission of Mutilations" (1891), translations of all of which may be found in one volume published by the Oxford University (England) Press, he would never have written anything so absurd. Dr. Lincoln's book is full of discussions of heredity intended for the layman, and yet its author has not mastered the contention of such an authority as Weismann! The erudite doctor continues: "That a man of originally sound health could 'acquire the trait' of chronic drunkenness, with immunity as respects the mental health of his children, would not probably be claimed; or, if the claim were made, it might safely be disregarded."

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[1] Dietetic and Hygienic Gazette, N. Y., Jan., 1898, p. 6. MEDICAL NEWS, Feb. 11, 1900, p. 271.

[2] Contemporary Science Series, p. 47.

In other words, the investigations of men like Francis Galton and Ray Lankester (to mention only two) are to be "disregarded" because a single Boston doctor whose name is unknown in the biological world says so. Dr. Lincoln is asking too much, just as Mr. Thistle, an English physician, asked too much when a few years since he tried to make the readers of the *Lancet* believe that cases of what he called traumatic epilepsy were hereditary. No doubt the epilepsy was hereditary, and epileptics occasionally have falls on their heads. In addition, if a person belongs to a family which is subject to epilepsy, or to insanity, or to some allied disorder, a fall may be the exciting cause of the fits.

I propose to show that Dr. Lincoln is wrong and that we have proof that acquired alcoholism has not been transmitted to the next generation in the past. Indulgence in alcohol increases, to some extent, the desire for whisky or some other "tipple"; but the extent of the craving differs in individuals to a very marked degree. In some persons experience of liquor awakens a desire for quantities of drink; they have the alcoholic diathesis, an inborn trait, which is transmitted with considerable certainty. If the possessor of this diathesis be deprived of all drugs, his neuropsychopathic constitution is demonstrated in some other way. Dr. Lincoln (p. 46) refers to a man giving up alcohol and becoming a gambler; one case of this kind and several somewhat similar cases have come under my observation, although I am not a physician.

We do not know how congenital variations originate, and I have no more idea to what the first case of alcoholic susceptibility was due than I have of the origin of supernumerary fingers. Both are undeniably hereditary. The man born with the alcoholic diathesis becomes a drunkard, unless withheld by moral or other deterrents. In the normal man experience of drink, no matter how prolonged, awakens merely a desire for moderate indulgence; but this desire for indulgence, the capacity for enjoying drink, has been acquired by the individual himself, assuming that he is normal. If acquired traits are usually transmitted, the race which has longest used alcohol would be the most inclined to drunkenness, because each generation would inherit its parents' and grandparents' capacity for enjoying drink, plus its own acquired desire produced by drinking. It is evident that, if the supply of alcohol were sufficient, the desire would become uncontrollable and the race would be exterminated. The conclusion, therefore, must be that the acquired taste for alcohol is not passed on to the next generation; but, if it were, the Jews, who have had alcohol for innumerable years, would have been almost wiped out by its use. If a few Jews were still left upon the face of the globe, they would be chronic drunkards, having inherited the desire for drink of many of their direct male progenitors added together. This is not so; indeed, we Jews are an extremely sober people, although our ancestors may centuries ago have been drunkards.

All the facts are easily explainable upon a neo-Darwinian basis. Men differ in the intensity with which they crave drink; those who crave most usually drink most. They are the men who were born with the alcohol diathesis. Alcohol most poisons those who consume the largest quantities, and by degrees they are slowly weeded out. This is merely the process of natural selection, and it follows, if acquired characters are *not* transmitted, that the elimination of the biggest drinkers and the survival of the smallest—those who have not inherited an abnormal desire—will result in a lessened tendency to deep indulgence, to the disappearance of those individuals who have inherited the alcohol diathesis, and to the evolution of a more temperate race. History demonstrates the accuracy of what I have written. For example, savages who have never been accustomed to alcohol are very drunken when they can get whisky. On the other hand, the inhabitants of the wine countries generally, who have had liquor for generations, are temperate in the best sense of the term.

I assert without fear of contradiction by any competent person that the vast majority of drunkards are persons who were born with a brain and a nervous system of poor quality, and that narcomania, in any form, is merely the outward manifestation of the disease. Anybody who investigates the family history of drunkards will very quickly discover that these sufferers belong, in most instances, to families which are on the "down grade." I gladly admit, however, that two persons whose ancestry was satisfactory as far as I could discover, but who drank to excess, have come under my observation. (The small number may be due to the fact that I am not a physician.) These individuals may have represented "acquired alcoholism"; but assuming that they were the fathers of abnormal children, I should regard that phenomenon as due to pseudoheredity. Moreover, young men often become drunkards by imitating the drinking habits of their fathers. As some men boast of how much they can drink, it is natural for their sons to grow up with the idea that the ability to drink much is a creditable habit. "Why does not this same thing occur with the daughters?" you ask. Sometimes it does, but they usually imitate their mothers, rather than their fathers; and a woman's opportunities for drinking are not as numerous as are those of a man. With women, "Good-morning" is very seldom equivalent to "Come and have a drink," as it often is with men.

Concerning pseudoheredity the facts are well-known. A typical case is the following: A parasitic larva, living upon a tree with few leaves, develops into a small and stunted imago. Nobody would claim that it "inherited" its abnomality from the tree, and it could not "inherit" anything from the larva, because it is the same insect in a different stage of metamorphosis.

The truth is that the problems of heredity are very intricate and cannot be summarily dismissed because, upon superficial examination, certain conditions seem absurd to those whose knowledge of biology is limited. A parent is in reality a trustee. He transmits, not himself and all his acquired modifications, eccentricities, and tendencies, but merely the representative constituents of which he is both a product and a custodian. In my estimation, his influence over his reproductive elements is little greater than is that of the host over the parasite. Whether this be correct or not, the dictum of Galton, expressed as long ago as 1875, that "acquired modifications are rarely, if at all, *inherited in the correct sense of the term,*" should never be forgotten. Dr. Lincoln, in writing that "cases which depend on defect of constitutional vigor would not be claimed as coming under his (Weismann's) prohibition," confounds pseudoheredity with true heredity.

I cannot do better than quote from a paper by Dr. J. G. Adami of Montreal, published in the *British Medical Journal* during June, 1901, and also in the *Montreal Medical Journal* of the same month.

"It is necessary to lay down clearly what is not inheritance, for in medical writings and in ordinary medical parlance a terrible confusion prevails upon this point, and much that is certainly not inherited is commonly spoken of as being hereditary. There is, for example, no such thing as hereditary syphilis. There is congenital syphilis and there are, to employ Fournier's term, inherited 'parasyphilitic' lesions, but 'hereditary' and 'congenital' are not and must not be regarded as interchangeable terms.

"The confusion is due to the common error of regarding the individual as beginning his existence at the moment of birth and not until then, so that everything occurring before that moment is grouped in one category, everything after in another. The chick, so to speak, is not a chick until it breaks open the shell; its status from the moment it ceases to be a new-laid egg or, more strictly, the egg of commerce, until it emerges from the shell is not recognized in law, and fresh egg and chick are commodities of wholly different orders. But the individual existence of the chicken has already begun even before the egg is laid, and what is true of the chick is equally true of the human being. The individual begins the moment that fecundation is accomplished, the moment the nuclear material of the spermatozoon fuses with the nuclear material of the ovum and these twain become one. Compared with the event, birth is seen to be of secondary importance, for the intra-uterine association of the embryo with the maternal tissues is but one means employed by a restricted number of species to insure the satisfactory nourishment of the individual during the earlier stages of development. The recognition of these facts is essential for any serious study of the problems of human inheritance. Any disturbance due to influence affecting the individual from without while *in utero* is *acquired.* It certainly must not be spoken of as inherited; it is an antenatal acquirement or is of *congenital* origin. That alone is inherited which is the property of the individual at the moment he becomes an individual, which is a property of the germ plasms from which he originates, or is produced by the interaction of those germ plasms. The biologist has no alternative but to define inheritance according to the principle here laid down, nor have we, dealing with a limited field of biology, the right to modify terms in general scientific use for our own convenience.

"Suffice it to say that tuberculosis or syphilis of the new-born must, from every valid consideration, be an acquired congenital condition, not an inheritance. And, let me repeat, only that which is derived from the parental germplasms is truly inherited.

"It is to the germplasm, the active matter in the germinal cells and to the properties of that germplasm that we must turn in order to gain our basis for any sound theory of inheritance. Weismann had done yeoman's service in emphasizing this fact. This germplasm it is which conveys living matter from generation to generation."

Dr. Adami's able article has not, I think, received the attention which it deserves, although its author is a pathologist of international reputation. Like the majority of physicians, he is a neo-Lamarckian and puts forward a theory of his own to show that acquired characters are transmitted. With this view I am unable to agree, but nobody appreciates the value of the article more than I do. I am unable to refrain from reproducing the two following excerpts from Dr. Adami's paper.

"Questions of inheritance at the present moment occupy a curious position in the minds of medical men and in medical literature. To judge from the medical press, we medical men are very Gallios—we care for none of these things. . . . Even in my own subject of pathology, treating as it does of the causes, the processes and the results of disease, in the discussion of which the laws of inheritance should obviously be carefully studied, if inheritance plays even a debatable part, turn to any of the text-books in our language and what do we find? A single page, or it may be but a single paragraph, is thought sufficient to introduce and to take leave of the subject. In short, from a concatenation of circumstances the medical study of inheritance is largely 'tabooed.'"

A word concerning the historical aspect of the doctrine that acquired characters are not transmitted. It is an error to regard it as anything new, for the facts are quite clearly stated in James Cowles Prichard's "Physical History of Mankind," published in 1813.

Mr. Leonard Hill of University College, London (England), has repeated Brown-Séquard's experiments upon guinea-pigs, with a different result. The details are as follows (*Nature,* Vol.

55, p. 161): By dividing the cervical sympathetic nerve, a permanent droop of the eyelid can be obtained. When this operation is performed upon guinea-pigs, according to Brown-Séquard, the droop (ptosis) is inherited by their progeny. Mr. Hill divided the nerve of six guinea-pigs on the left side, but none of the "children" of these animals inherited a permanent droop of the eyelid. He again divided the nerve in twelve animals and interbred them, but none of the young inherited the permanent droop. A temporary droop of either the right or the left upper eyelid, frequently observed in the young, was caused by conjunctivitis arising from infection of the eye after birth, for the young were never born with the droop. The droop disappeared with the conjunctivitis, which was not due to paralysis, but to photophobia, and often disappeared on sudden excitation of the animals. (*Nature* being an English journal which I am not permitted to take out of the library, I have quoted the facts and the language from memory as accurately as possible.) Mr. Hill's experiments seems to show that a temporary droop deceived Dr. Brown-Séquard.

I consider that I can offer a good excuse for having written this paper. It is the duty of scientific men "to educate their masters," the sociologists and the legislators, by demonstrating to them that the hypothesis of the heredity of acquired characters is not sustained by reliable evidence, and that the complete recognition of the Darwinian principle of the selection, by Nature and artificially, of those who are congenitally "the fittest," is the only method by which the human race can obtain permanent control of its destiny.

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THE MORNING DROP; ITS TREATMENT.*

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THE morning drop (goutte militaire, Gutenmorgentropfen) which presents at the male meatus is treated with either callous indifference or dire apprehension. These two aspects are as unjustifiable and as dangerous as they are extreme. When neglected in consequence of indifference, the disturbances which manifest themselves by the morning drop go on unchecked; in the present state of medical knowledge the danger thereof need not be emphasized. When viewed hopelessly because of its persistence, the patient becomes the victim of mental depression which, if it does not entirely disqualify him for the business of life, at least limits his working capacity far below what would be the normal standard for him.

I have elsewhere[1] outlined the elements which produce this symptom and its variations. The present purpose is to sketch the treatment which this manifestation demands of modern science. This, naturally, must vary materially in accord with the provocative causes. Any attempt to describe these causes separately is confronted by the fact of their being often so interlaced as to be practically inseparable save by a master-pen. Therefore no effort to classify finely is here made as it would, in the present consideration even more than elsewhere, encumber the subject.

It may, however, be permissible to employ the time-honored division which separates any condition into those affections due to local and those due to constitutional causes. Though a moment's thought will show that in genito-urinary diseases this generality will not always hold good, yet the classification is here adopted for convenience.

The local causes of the morning drop, even in a very brief review of them, might suggest that the diagnosis involves considerable research. This, however, is not the case. The diagnosis is neither complicated nor difficult, and when once reached, the treatment, even more than in other conditions, is self-evident. An attempt will here be made to submit these local causes for consideration in the order of their frequency.

1. *Chronic Gonorrhea.*—When gonorrheal urethritis has produced pathological changes in the urethra or its adnexa, these aid in maintaining the chronicity of the fundamental disease. Any or several of the local conditions which provoke the morning drop may act in this manner. Therefore, although gonococci are found in the drop, the diagnosis is by no means complete, and the treatment advocated for chronic gonorrhea will not suffice for its cure. It behooves us, therefore, to differentiate by exclusion; if careful examination eliminate all of them, then, manifestly, we have to deal with gonorrheal involvement of the mucosa exclusively. This subsides under systematic irrigations alone or with methodical dilatations. This summary disposal of chronic gonorrhea must seem unjustifiable in view of the vastness of the literature upon the subject. But it must be remembered that at present only one symptom thereof, the morning drop, is under consideration.

2. *Involvement of the Crypts and Glands.*—Without causing much material change in the structure of the urethra's minor adnexa these may be invaded by gonococci. Their presence may be manifest in no other way than by a drop of moisture which appears at the meatus every morning. The diagnosis of this condition is unattainable otherwise than by direct inspection by means of the urethroscope. In their diseased form, the mouths of Morgagni's crypts and Littré's glands are enlarged and often gaping. Positive diagnosis is reached by pumping from them some of their contents by means of Kollmann's gland aspirator. The substance so obtained can then easily be spread upon a cover-glass and examined. Not infrequently the ex-

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pression to which these glands are subjected by dilatations and irrigations, as first mentioned, suffice to restore them to the normal state. Should this not result, they can easily be destroyed by Kollmann's electrolytic needle.

3. *Gonorrheal Posterior Urethritis.*—This may manifest itself in the morning drop alone. The fact that all the urine passed is clear does not exclude a posterior urethritis. The mucosa of this very extensible region may be so slightly affected that it yields no excess of secretion to the passing urinary stream. The diseased secretion may be so small that it requires seven or eight hours of interval between urinations, as during sleep, to accumulate sufficiently to assume a perceptible form. It is then slowly or rapidly extruded and appears at the meatus on awakening.

Among the several methods employed to diagnose this form of slight posterior urethritis, the following are the most exact:

a. Urethroscopy.—Visual exploration of the posterior urethra involves at least such experience as will permit painless introduction of the tube into this delicate and sensitive region. The changes therein, however slight, are then evident. But as urethroscopy involves extensive special study, its mere mention here must suffice for the present purpose.

b. The Expression Urine.—The patient is first ordered to partly empty his bladder. Then, the finger passed into the rectum, avoiding the prostate, exercises a series of strippings upon the posterior urethra. The patient is then ordered to urinate. Though before this procedure all the urine passed was perfectly clear, the *expression urine*[2] now emitted will, if it be not turbid, at least contain large or small shreds, filaments and flakes detached from the posterior urethra. These may have been so adherent that without the manipulation described the urinary stream did not suffice to carry them off.

c. The Methylene-blue Test.—The patient is ordered to refrain from urinating as long as possible. It is preferable, when this can be done, that the patient come to his physician's office before voiding the first morning's urine. The anterior urethra is then washed out as for Kollmann's or Jadassohn's tests.[3] Those who have even slight experience with the use of the irrigator will prefer this instrument for washing the urethra. After the water flowing from the channel is perfectly clear, the anterior urethra is filled with a 1-per-cent. solution of methylene blue. This solution is retained for two or three minutes. The patient is then ordered to urinate about 60 c.c. into one tube and to pass the remainder of his urine into another. If the floaters in the first tube are tinted blue and those in the second tube are not, it proves that the latter come from the posterior urethra.

d. The Iodide-Iron Test.—To establish firmly the fact that the water used for cleansing the anterior urethra has not been forced through the compressor, it may be well to use instead of water alone a solution of iodide of potassium 1 to 1,000. When the patient has urinated as before described, several drops of tincture of the chloride of iron are added to some of the second urine voided. If the iodide solution has penetrated the bladder, the urine so treated will turn blue and the test is thus proven a failure. If, however, it does not become blue by the addition of the iron, the result before mentioned is affirmed. The treatment of the form of chronic gonorrheal urethritis just mentioned consists in dilatations, irrigations, or local applications of silver nitrate or picric acid with the Guyon or Albarrán instillator.

4. *Non-gonorrheal posterior urethritis* may also be disease the presence of which is shown by the morning drop, with or without other symptoms. Non-microbic inflammation of the posterior urethra most frequently follows gonorrhea. It may, however, also result from irritations due to incomplete sexual intercourse, such as coitus condonatus or coitus reservatus. It may likewise be provoked by long-continued masturbation. Each of these causes merits consideration as extensive as is the literature on these subjects. To present an outline, as far as is consistent with the purposes of this paper, it may here be mentioned that

Post-gonorrheal posterior urethritis is diagnosed by the same methods that were suggested for diagnosis of gonorrheal posterior urethritis (3). The treatment of this condition does not vary materially from that of gonorrheal inflammation of the posterior urethra, except that milder solutions of the same drugs are used for the irrigations and instillations. In the non-gonorrheal form of this disease we can often rely upon even so mild an antiseptic solution as boric acid 2 per cent. in hot irrigations.

Coitus condonatus, coitus interruptus and *coitus reservatus,* so much employed by married people for the prevention of conception, may also, as suggested before, provoke inflammation of the posterior urethra without infection of the urinary conduit. This has not received the attention its frequency or its severity merits. In fact, the only author who has touched upon it to any extent is Oberlaender.[4] He showed that these means of preventing conception (condoms, withdrawal and repression of emission) all provoke hyperemia of the delicate mucous lining of the posterior urethra. When imperfect intercourse is persisted in, the hyperemia leads to maceration of the posterior urethral mucosa with a train of symptoms, both local and reflex, of which the morning drop may be the least disturbing.

Besides the other treatment advocated for posterior urethritis, the prevention of the escape of semen into the vagina must be strictly forbidden. If the patient will not listen to reason for the sake of his own health, it must be made evident to him that his wife also may sooner or later suffer seriously from the consequences of this incomplete mode of sexual gratification. A question presents itself here regarding the women whose constitutional condition forbids pregnancy because of danger to themselves or because of the impossibility of begetting healthy children. To forbid sexual intercourse to a couple who are tied by the bonds of love and law entails torture to both. Whether we may conscientiously tolerate the above-mentioned practices for the prevention of conception between such couples, is a problem which should be relegated to men wise in sociology.

Masturbation is often cited as one of the causes of posterior urethritis. Only a slight waste of time on quack publications shows how fully charlatans avail themselves of this, and the lurid manner in which they endeavor to frighten men into the dread of all sorts of dire consequences. There is no doubt that nearly all men have masturbated during early boyhood. The vice is usually given up at the approach of puberty. In the very rapid formative stage repair of the posterior urethra then ordinarily takes place. If the vice has not been furiously and persistently maintained, the man develops ordinarily without any consequences whatever. This must, however, not be taken to mean that one should under any circumstances tolerate the vice. A boy guilty thereof should at once be warned or compelled, if possible, to desist, lest the vice gain control of his will-power. In case it does, posterior urethritis, with all its attendant and consequent conditions, may go beyond remedial agencies.

5. *Prostatitis and seminal vesiculitis,* together or separately, may have a persistent morning drop as their most marked symptom. Wossidlo[5] points out the frequency with which the prostate is invaded by gonorrhea, and Frank[6] holds that when a patient comes under treatment for gonorrhea and the gonococci do not disappear within from three to five days from the beginning of treatment, the prostate is involved. Omitting polemics from the present consideration, we can never consider our search for the cause of the morning drop complete until we have interrogated the prostate and seminal vesicles. If tactile and visual exploration of the urethra and chemical examination of the urine reveal no cause for the morning drop, we will ordinarily find it in the prostate and seminal vesicles. Massage and stripping of these urethral adnexa will then lead to the abolition of these persistent manifestations of disease. In practice it will be found advisable to follow the mechanical treatment by intravesical irrigations with silver nitrate 1 to 10,000, or by instillations of the same drug 1 per cent., or picric acid 1 per cent. to 1.17 per cent. Naturally no allusion is herein made to the violent, fulminant forms of invasion of the prostate and seminal vesicles; their treatment belongs to a distinct chapter on these diseases.

6. *Stricture,* like the other conditions mentioned, may manifest its presence by an excess of urethral moisture appearing at the meatus in the morning. When all the other means of diagnosis mentioned before and those to be outlined have been employed, the diagnosis of stricture can be reached by exclusion. This can be further affirmed on microscopy of the urine by the appearance of the urethral epithelia. If their nuclei are abnormally smooth, or have lost their granular appearance, or if the nuclei are entirely effaced, the presence of stricture in some part or parts of the urethra is established. The location of the stricture, as well as its individual characteristics must then be ascertained by means of the largest *bougie-à-boule* which will pass it without pain to the patient or injury to the urethra. The condition which gives rise to the morning drop can then easily be seen by means of the urethroscope. This instrument will show at least maceration of the mucosa behind the stricture.

A divergence from the subject in hand may here be permitted for a word against the employment of sounds for the diagnosis of stricture. A large-sized rigid sound will in many cases glide easily into the bladder. In its passage it conveys no sense of obstruction to its progress. If then a very soft *bougie-à-boule,* even two sizes smaller, be used and be deftly withdrawn from the urethra, it will expose coarctations which the rigid instrument presses open and glides over without the slightest manifestation of their presence. It cannot be too often emphasized that the sound is a therapeutic and not a diagnostic instrument.

The treatment of the various kinds of stricture embraces volumes of study. In a general way, however, it may be said that the majority of strictures will yield to gradual painless treatment with dilators. Those who object to the use of dilators, especially on account of the increased labor they impose upon the physician, may here be reminded that not a single death has followed the use of these instruments.

7. *Tight Meatus.*—This form of stricture (as shown by my former associate, Wm. H. Prioleau,[7] now practising in Asheville, N. C.), atresia, congenital or acquired, can be the cause of many local and constitutional disturbances. It is within the experience of every practitioner that when the meatus is contracted for any reason an inflammation behind it sempiternally involves the mucosa. In some instances this contracture of the meatus is amenable to dilatation, but in the majority of cases meatotomy is required for its relief. This operation, which can easily be made painless, in no case accomplishes the desired result unless the posterior boundary of the fossa navicularis be slit to at least the same extent as is the meatus itself. It is not at all a rare occurrence to find that a persistent morning drop yields to this slight intervention alone, provided no other pathological condition has been established behind this region.

8. *Growths.*—From causes connected with or separate from gonorrhea, the urethra is the site of neoplasms far oftener than is ordinarily assumed. While these growths are usually benign in character, malignancy is by no means excluded. The most ordinary new formations in the urethra are condylomata. Their removal is always

imperative. In many cases they yield to the direct application of picric acid; when this fails, they must be snared off through the urethroscope and their bases cauterized.

9. *Aseptic (catarrhal) Urethritis.*—When exploration of the urethra with the *bougie-à-boule* and the urethroscope shows a normal mucosa, and when the adnexa of the channel are found to be healthy; when chemical and microscopic examinations of the urine reveal no abnormality, and still a drop appears at the meatus every morning, it is our duty to examine this drop itself as we would any excess of urethral secretion. If microscopy often made shows this drop to consist of nothing but mucus, epithelia exclusively from the upper urethral layers and perhaps but a few occasional pus corpuscles, we may pronounce the case one of aseptic or catarrhal urethritis. If we can eliminate from the case any digestive or other constitutional disturbance as a causative element, our treatment must be confined to irrigations with simple astringents. Of these, tannic acid and sulpho-carbolate of zinc are among the best. In the rather recent cases 1-per-cent. picric acid often proves surprisingly effective; but when picric acid is relied upon disappointment often supervenes—the delight with which the patient reports the absence of the morning drop is frequently followed in a few days by deep chagrin at its reappearance. It is wise, therefore, to warn the sufferer that a quick and brilliant permanent result must never be expected. Should any drug be followed by disappearance of the drop on the following morning, the generality of cases will require irrigations to be continued, at first daily, then every second day. If the drop does not recur in about fourteen days under such treatment, the intervals between irrigations may be extended by interposing an additional day between each irrigation. When the interval between treatments has reached a month the case may safely be deemed cured.

10. *Erection Drop.*—Literary research has not revealed to me any mention of that drop of clear moisture which appears at the meatus of young men or men who are still sexually so young that the morning is ushered in by a stanch erection. The hyperemia of the mucosa so produced evokes an increase of secretion which becomes manifest while the erection subsides. This drop can be evident in those who have never been so unfortunate as to have suffered from a gonorrheal infection. If a person who has read quack pamphlets notices this drop, he will be convinced that there is no prospect for him except impotency, consumption or the lunatic asylum. Usually the evidence of the microscope and of other means of precise diagnosis will not relieve such a patient's mind. He will, unless the dreaded drop be actively treated by the physician, fly to a charlatan who will maltreat the urethra as long as the patient is willing to pay for it. The irritative urethritides thus produced, with all their consequences, are too well known to merit detailing here. It is best therefore to treat such cases with innocent preparations. These should be given with very precise directions regarding their use, and regularity of sleeping hours should be carefully enjoined. The one method which invariably is successful in these cases is to cause the patient to be awakened before the usual matutinal erection dispels sleep. This is done as follows: The patient is first instructed to observe the hour at which he usually awakens. When this is ascertained he is ordered to set his alarm-clock so that it arouses him half an hour earlier, when he must leap from his bed and urinate as quickly as possible. If the urgency thereof can be made so important that the patient is given no time to examine his meatus, the efficacy of this method will the sooner become manifest. It can be aided by causing the patient to drink at least a pint of water before retiring.

11. *The Courtship Drop.*—This is a designation I beg to offer the profession in the hope that some one more capable will devise a better term. It is intended to describe the drop of more or less opalescent juice which presents at the meatus of some men in the morning after an evening spent in erotic dalliance with women but without sexual intercourse. This drop may occasionally contain spermatozoa, besides prostatic juice, sympexia and urethral mucus.

If the provocative cause be long continued there are found in the drop, besides these substances, epithelia from the posterior urethra, the prostate and the seminal vesicles. It then presages the foundation for spermatorrhea, prostatorrhea, irritative prostatitis, seminal vesiculitis and posterior urethritis, with all the evils that attend these conditions. It is beyond the present purpose to discuss morals and ethics, therefore no consideration can now be taken of the propriety of advising marriage or illegitimate coitus to cure this premonitory symptom. The manner in which marriage is viewed among us prevents its being looked upon as a therapeutic measure. The remedy in these cases is exclusively abstinence from the provocative cause. If a fiancée evokes the hyperemia, this advice is difficult to follow. The patient must then be instructed to spend no time alone with her. The evening visits, usually devoted to caresses and other demonstrations of affection, should be spent in social entertainments or theatrical diversions, which render these forms of perhaps reciprocal psychical onanism impossible. Were the effect thereof limited to mere excess of urethral secretion, the mantle of delicacy might exclude this matter from professional discussion. But the inroads this vice makes upon the patient's mental and nervous condition alone emphasize the need for its consideration. The local physical changes for which it prepares the field are daily demonstrated in cases of chronic posterior urethritis and the complications of this widespread ailment.

The constitutional causes of the morning drop come distinctly within the domain of the internist. While these causes are but few each one is so varied in itself that its study to a useful degree entails very much research. The most frequent are:

Urinary Disturbances.—Those deviations in tissue metamorphosis which manifest themselves in phosphaturia, oxaluria, excess of uric acid and other urinary expression of metabolic errors can and often do provoke irritation of the urinary passages. This may manifest itself in mere urethral "soreness" or in slight hypersecretions. After a prolonged interval between urinations, such as takes place during sleep, a drop or more of urethral secretion may appear at the meatus. To treat this by local means but aggravates the condition; the remedy lies in correcting the metabolic disturbance, when the urethral irritation ordinarily subsides without treatment. But if despite the correction of the error of metabolism the urethral disturbance continues, the conduit must be treated as suggested elsewhere.

Rheumatic urethritis is a rare ailment the consideration of which is practically embraced in those which are due to urinary disturbances. Its treatment, as suggested by the cause, is in antirheumatic diet and medication.

Food Urethritis (*urethritis ab ingetis*).—Some men almost invariably find an excess of secretion at the meatus on the morning after consuming irritative foods, such as cheese or strong spices. With others, beer, white wine, or carbonated drinks are followed by this manifestation. If exhaustive examination show the drop to be free from microbes and the history of the case reveal its recurrence after each alimentary indiscretion, the treatment is clear. It will be useless to attempt to remedy the digestive disturbance by drugs, or to inure the urethra against its irritations. Abstinence for years, or perhaps for life, from the things which produce the morning drop is the only treatment that can be advised. If the patient be so self-indulgent that he will have his Welsh-rarebit at midnight, or will commit other atrocities upon his digestive apparatus, and if these aggressions be followed by the morning drop, his urethra and his common-sense are beyond the science and art of medicine. Besides the local and constitutional causes for the morning drop are those which belong to neither, yet pertain to both.

Overtreatment.—One of the greatest difficulties with which the practitioner must contend lies in the importunities of patients for treatment when the local and general conditions no longer demand intervention. The presence of ever so slight a quantity of secretion which can be forcibly milked from the urethra is accepted by the patient as evidence of disease. Unless the physician treats the urethra and treats it vigorously the patient will fly to quacks who will confirm his worst apprehensions and render perpetual a condition that would have subsided without treatment. Manifestly, then, our duty is to treat the case, and just at the point of the symptom which disturbs the patient's mind. We must, however, first determine, by several microscopic examinations, that the slight excess of urethral moisture contains no bacteria; by chemical and microscopic examination of the urine, that it is perfectly normal; by tactile exploration of the urethra, that it contains no pathological coarctations; by urethroscopy, that the mucosa and the glands opening into it are healthy; by palpation of the prostate and seminal vesicles, that no abnormality of size, shape or consistence exists; by expression of the prostate, seminal vesicle and Cowper's glands, to obtain specimens of their contents and establish the fact that they are in health; by provoking a discharge with a silver-nitrate injection or an irrigation with mercuric bichloride and examining this discharge.

Irritative injection or irrigation may be preceded by the beer-test, in patients not inclined to become drunkards thereby. The condom test, which is most likely to contain specimens from the entire genital tract, cannot be demanded except in patients with whom the sexual habit is established and who will not abstain from coitus.

All the tests should be carefully executed and several times repeated. When each of these tests has proven negative, it is plain that the excess of moisture which can be milked from the urethra is due to an irritation. This irritation may be maintained indefinitely by the "milking" which the patient employs or by the abuse of instrumentation, irrigation or injections.

Ordinarily the patients in this condition are not amenable to conviction. They insist upon being treated for the artificial ailment. In such obstinate cases we have one recourse, which is invariable effective. It consists in the cruelty of blistering the penis, thus rendering manipulation impossible. By the time the blister has healed the urethra has had the rest it requires and subsequent strippings or milkings fail to produce the drop which erstwhile distressed the patient. This should never be resorted to until all the tests above mentioned have proven that there is no genuine pathological condition that can be made answerable for the symptom.

To those whose practice has led them afield from genito-urinary diseases, it may seem that unwarrantably much of your time has been consumed in the consideration of a single symptom. If an apology therefor be needed it will be found in the tremenduous frequency of that symptom.

To our younger colleagues, who must struggle through literature for explanation of the protean causes for the morning drop, as each case presents, this feeble effort at a sketch is offered with the hope that it will aid in their ofttimes arduous tasks. The points which I desire particularly to impress upon these younger colleagues are:

1. That the morning drop is ordinarily a symptom of local or constitutional disturbance.

2. That when it is not due to either of these, it is maintained by overtreatment or artificial sexual irritation.

3. That according to its cause, it must be treated; locally, if due to a local cause, and constitutionally, if faulty metabolism or food irritation be

the provoking element; if sexual irritation be the cause, this must be stopped.

4. That if the morning drop be due to overtreatment, it must be discontinued.

5. That the cause of the morning drop is not difficult to ascertain.

6. That its treatment is within the sphere of the general practitioner.

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IS VIVISECTION A BENEFIT TO ANIMALS AND MAN AND JUSTIFIABLE?

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"I THINK we might take a suggestion of leniency towards all beasts, since they had prior possession of this world and that man came in afterward. Fish and fowl were created on the fifth day. The cattle were created on the forenoon of the sixth day. Man was not created until the afternoon of the sixth day. Certainly the brute creation first in possession of our world ought to have a little regard from a race coming in after. In what light does this put the horrors of vivisection, or the mauling of living animals for the purpose of improving our knowledge of human physiology? In all parts of the earth, in the name of Science, is this crime going on today, to-night. You have no more right to lacerate a living dog to find out what is best for a sick man than you have to lacerate a living man for the benefit of a sick dog. Let this exploration be a *post-mortem* one, whether in the case of man or beast. Vivisection must by the law of all Christians be forbidden. Maltreatment of the brute, in some respects, is meaner than maltreatment of men, for men can make appeals against wrongs inflicted, but the brute can do nothing but suffer."—*Christian Herald* (Editorial), Dec. 18, 1901.

Both the fundamental conceptions and the facts on which this editorial is based, I regard as erroneous. In the first place, permit me to say that I believe in the honesty of conviction and the sincerity of motive animating the utterances on this subject; likewise I take it that the only aim is to arrive at the truth, the whole truth and nothing but the truth in investigations. In this connection I will say that that I, myself, do not believe any wanton cruelty should be indulged in or unnecessary experiments be resorted to in investigations on living animals.

The ground being thus cleared, let us examine this question in an impartial way and see what course of action will avert from both man and beasts the most suffering and misery. Let us scan the scroll of history, both sacred and profane, and see what relative position man and the brutes have always held, and try to ascertain what causes and influences have contributed to the amelioration of the conditions of both and have helped to raise our civilization to a higher, happier and better plane.

In the first place, which is the more important, a man or a brute? If one's own wife or child were lying seriously ill and it were necessary to sacrifice a chicken, a rabbit or even a dog to save the life of that loved one, would you do it? I do not believe it is necessary to wait for an answer to this question, and in view of this I think the statement, "You have no more right to lacerate a living dog to find out what is best for a sick man than you have to lacerate a living man for the benefit of a sick dog," is overdrawn.

What is the difference between a man and a brute? Have not preachers told us thousands, yea, millions of times over, that by breathing a soul into him God placed man at the head of the animal kingdom and gave him dominion over the lower animals, and moreover that these animals were created for his use, sustenance and welfare? The old Mosaic chronicle is largely made up of specific directions for the sacrifice of goats, lambs, bulls, etc., the choicest of the flocks for the expiation of sins. If God, who we are told is an unchangeable God, does not regard man more highly than brutes, why did He not order the sinners to be slain and let the innocent animals go free? The Savior of mankind spent much of His time in healing the sick, comforting the sorrowing, and relieving the pain and anguish of the suffering. Do you suppose that as He stood by the bier of the dead brother of His friend and heard the words, "Lord, if thou hadst been here, my brother had not died," He thought the dead man—the tenement of an immortal soul—was not better than a dog? Do you think for a moment He would have wept over the carcass of a village cur and restored it to life? I believe that the God-given mission of man on earth is not only to save souls in this world, but at the same time, following in the steps of our great examplar, to do all in our power to heal the sick, relieve pain and anguish, comfort the sorowing—fight disease and error and raise mankind to a higher plane, physically, intellectually, morally and spiritually.

I most heartily concur with what is said in another editorial: "God did not build this world for a failure." He created the universe and at the same time he created the laws that govern it. He set in operation the great natural laws that control the course of the planets and the revolutions of the worlds, but at the same time he made the laws that regulate physical and mental health.

He gave man a mind and a will, and placed within him high and noble aspirations which have spurred him on to develop and train this mind so that he might unravel the mysteries and solve the problems of the physical and mental laws by which he is controlled. Long and tedious has been the way; slow and painful man's ascent from darkness up to light. Every foot of the way has been obstinately contested by superstition, ignorance, fanaticism and misdirected zeal. The God-illumined genius of man has never evolved a life-saving or mind-soothing discovery that has not been bitterly fought by the great mass of people. The quiet, unobtrusive, self-sacrificing investigators who consecrated their lives to the study of the laws of nature and of life; who not only experimented on animals, but manfuly stood at the bedside of plague-infected and fever-stricken mortals, soothing their pains and making a heroic fight against the grim monster, death, even when those nearest and dearest to the sufferers had fled in terror, have down through the centuries been misrepresented, vilified, abused, and held up to the execration of mankind as though they were monsters in human form, and all, forsooth, because they had used a few living animals in making their investigations.

In order to properly understand abnormal phenomena or conditions that he may correct or relieve them the investigator must know what normal phenomena and conditions are. To get this knowledge he must observe these phenomena in the living being.

Thousands of years of empiricism and "post-mortem" deductive reasoning found mankind engulfed in ignorance of the laws of health and correct living and a prey to plagues, pestilences and death which swept over and decimated the earth. In their abject terror and despair they made pilgrimages to the Holy Land, they erected shrines and they offered prayers, but all without avail, and the carnival of death held triumphant sway in their midst.

Having glanced at the appalling results of empirical and wrong methods as exemplified in the most civilized countries of Europe a few centuries ago, let us now survey some of the beneficent results which have come from scientifically applied experimental investigations on living animals.

1. "By experiments on living animals Malpighi, Waller and Conheim demonstrated how blood nourishes the tissues." (See writer's article on "Some Benefits of Vivisection or Experiments on Living Animals," Cincinnati *Lancet-Clinic*, Feb. 3, 1900.)

2. "Aselli and Pequet showed how the chyle is carried into the blood."

3. "By the same means Hunter, Magendie and others revealed the processes of intestinal digestion."

4. "Sir Charles Bell and Magendie discovered the difference between the motor and sensory functions of the spinal nerves."

5. "The Webber brothers, by vivisection (1845) ascertained that an impulse sent down the vagus nerves will stop the heart from beating; while impulses reaching the cardiac sympathetic nerves from the thoracic spinal cord stir up the heart to more vigorous and frequent beats."

6. Claude Bernard's discovery of the formation of glycogen in the liver (1851) "came," says Prof. Michael Foster, "like a bolt from the blue;" and he adds: "It was the first realistic proof of the synthetic powers of the animal organism. The knowledge that the same hepatic cell was engaged both in secreting bile and manufacturing glycogen, and that the sugar and other products of digestion were carried from the intestine, not straight to the tissues which they were designed to nourish, but to the liver, there to undergo transformation and await some future fate, marked the beginning of a new way of looking at the problems of nutrition."

7. "Claude Bernard (1851) divided the cervical sympathetic (nerve) in a turtle and it led to a widening of the blood-vessels and a warming of the ear and other parts of the head and neck. This experiment was the beginning of our knowledge of the action of the vasomotor nerves and revealed the mechanism whereby the distribution of the supply of blood is regulated and afforded an explanation why a man may not bleed to death in his own veins."

8. "Ferrier, Broca and many others by experiments on living animals have so illumined the physiology of the brain and localized its functions that many things which a few years ago were dark and mysterious are now as clear as the noon-day sun. These results have enabled physicians to make an early diagnosis of intracranial lesions or diseases and to apply early and appropriate treatment."

9. "In 1674 John Mayow, a young Oxford physician, by experiments on mice showed that the agony and death of a suffocated animal are due to the consumption of a constituent of the air." By this single experiment the dangers of foul and contaminated aid were clearly shown, the importance of an abundance of pure air and proper ventilation was demonstrated and sanitary science placed on an enduring foundation.

10. Priestly demonstrated the life-giving qualities of oxygen.

11. "By animal experiments Black discovered the effects of carbonic-acid gas."

12. In the same way Rutherford and Lavoisier proved that nitrogen will not support life.

13. Mering and Minkowski have shown that removal of the pancreas causes glycosuria (diabetes).

14. "Claude Bernard, Brown-Séquard, Vascole and Gley discovered the modern treatment for goiter and cretinism by careful experiments on living animals."

15. "Pasteur, by vivisection, discovered the cure for hydrophobia, and by his investigations laid the foundation of the modern science of bacteriology. He not only prevented human suffering, but by preventing diseases in animals has warded off more pain from them than has

ever been caused by all the vivisectors in the world."

16. "Stimulated by Pasteur's results, Lister, by elaborate investigations, devised our modern antiseptic treatment of wounds. This has brought surgery to a degree of perfection undreamed of a few decades ago and has saved countless thousands of precious human lives, especially of mothers in the prime of life whose death would have been an irreparable loss to their children."

17. "Diphtheria antitoxin, which has reduced the death-rate of this dread disease more than one-half since its introduction, and, according to the eminent scientist, Charles Richet, has each year saved the lives of about fifty thousand children in the United States, England, France, Germany, Italy and Russia, is directly due to experiments on living animals; and at the present time other investigations are being rapidly pushed which will probably in the near future bring cholera, yellow fever, the plague and other dread diseases under the control of the physician."

18. "Gross, Senn, Morris, Reed and other workers in our own country, by vivisections have demonstrated the best methods of repairing gunshot wounds of the intestines, and the most approved methods of operating for appendicitis, which has so reduced the death-rate in these serious conditions that thousands of valuable lives have been saved every year."

19. "The Baureau of Animal Industry, a branch of the Department of Agriculture, by experiments on living animals, has been enabled to stamp out many diseases, and has not only prevented much suffering and death among domestic animals, but has also saved millions of dollars for the farmers and stock-raisers all over our broad land."

20. Dr. Beaumont's careful observations through the opening in the stomach of Alexis St. Martin did more to give a correct idea of the physiology of digestion than thousands of years of empiricism and deductive reasoning had done.

"We thus see that the foundations of physiology, chemistry and sanitary science were laid by vivisections, and many of the greatest advances in practical medicine and surgery are directly dependent on the same cause.

"Indeed, so great are the benefits we enjoy as the result of the immunity conferred upon us by experimental investigations on living animals that many cannot appreciate the appalling condition of the world before these discoveries were made.

"In order to contrast the results achieved by scientific investigation or vivisection, as illustrated by the conditions under which we live at the present time, and the empiricism for which antivivisectionists are so loudly clamoring, let us for a moment draw aside the curtain of history and gaze on the results of thousands of years of empirical experience. Do this and we behold plague and pestilence sweeping over the land, leaving desolation and death in their track. Here we see cities converted into vast charnel houses, the streets covered with dead bodies, and not enough well to care for the sick and dying; there we behold uncoffined corpses rolled into great trenches or left as food for ravening animals or to pollute the atmosphere.

"We who enjoy the immunity afforded by vaccination can scarcely believe that such ravages were caused by smallpox in London as are so graphically described by the historian Macaulay, who informs us that it was a rare thing at one time to find a person in that great city not disfigured or marked by the dread disease. When we emerge from the mephitic atmosphere, laden with ignorance, disease and death, of the London of two centuries ago, with its death-rate of 80 to the thousand, into the clear light of sanitary and medical progress of the present time, with its death-rate of less than 20 to the thousand in civilized countries, we feel like one who has passed though some terrible danger, who has been surrounded by invisible and relentless enemies which happily have been routed or are being put to flight by the knowledge resulting from experiments on living animals.

"Nor is it necessary to go back centuries to note these changes! Where ten years ago fathers and mothers stood by the death-beds of their dearly beloved children who were strangling and saw them snatched away by the fell destroyer diphtheria, when the sympathizing physician, impotent to cope with his relentless enemy, stood with downcast face, we now behold smiles of joy light up the faces of the parents as they see the roses stealing back to the cheeks of their stricken ones and the proud, happy look of the physician who boldly faces and defeats his old enemy with antitoxin. I ask these fathers and mothers if *one* such victory as this is not worth all the horses that have been used in attaining the results. And when we consider the thousands of innocents saved to advance and adorn civilization through cycles of the future we can appreciate the almost infinitely beneficial results that flow from animal experimentation and form a just conception of the enormous responsibility assumed by those people who would consign *our own children* to a horrible death and cast a pall of disease over the future in order to prevent a few animals from being used for experimental purposes."

The next question that naturally arises in this discussion is, How much suffering is inflicted in vivisection experiments? If we believed half the blood-curdling stories told by the antivivisectionists we would picture scientific investigators to ourselves as incarnate fiends who took a special delight in torturing helpless animals. The facts of the matter, however, are that nearly all experiments are performed under the influence of anesthetics and the animal feels no pain whatever. Then, too, many of the pathetic appeals and blood-curdling recitals of horrible sufferings are based on gross ignorance of physiologic knowledge. If these writers knew that the motor region of the brain is insensitive and that operations on these parts of the brain substance do not cause any pain whatever, they would be spared many useless tears. More real knowledge and less sentiment would be an inestimable gain both to themselves and to humanity.

In conclusion I desire to say that I admire the zeal and enthusiasm of the antivivisectionists, but why they should so bitterly oppose those agencies which have done so much to make the world brighter and better has always been a mystery to me, when so many much greater evils lie close at hand and urgently demand correction. If they will put a stop to the wanton, useless and utterly repugnant slaughter of the thousands of feathered songsters, *the victims of fashion*, that are every year killed to ornament the bonnets of women throughout the civilized world, they will prevent more suffering than is inflicted by all the scientific experimenters in existence; if they will prevent the wounding and mutilating of the thousands of animals that yearly drag out a miserable existence and probably starve to death to furnish recreation and amusement to distinguished ministers, politicians and others of the leisure class; if they will abolish the chasing of defenseless creatures with horses and hounds until they actually drop dead and other similar cruel things done in the name of sport; if they will rescue some of the thousands of women and children who are constantly dying by slow starvation in our large cities and try to direct them into a higher and happier life, they will find their time fully occupied and they will do a great deal of good.

While they are doing this work they can rest assured that the welfare of humanity, as well as the best interests of the lower animals, will be protected and advanced by physicians and scientists as they always have been in the past.

HEPATIC GOUT AND ITS TREATMENT.

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A CERTAIN train of symptoms which have hitherto obstinately refused to yield to treatment led me to make a careful study both at the bedside and postmortem in several cases of acute and chronic hepatitis, and from these studies I have come to the conclusion, for reasons which I shall endeavor to show, that there exists a form of hepatitis which can be traced to the uric acid diathesis.

The history of rheumatism and of gout, its congener, goes back far into the shadowy vista of the past, at least as far back as Hippocrates, and we find that they are both considered to have originated from a common ancestor and were first observed in the feet, hence the term "podagra." The diseases, passing through different stages of development with symptomatic manifestations, have progressed in definition through the hands of such men as Arétée of Cappadocia (138 A.D.), Coelius, Aurelius, of the second century, Radulfe of the thirteenth, Baillon of the sixteenth, Sydenham of the seventeenth, Tennant and Pearson of the eighteenth, and Bouillard, Garrod, Charcot, Luff, Lecorche, and others, up to the present day, so that, while the cause of the disease is still obscure, we have the observations of twenty centuries to throw light on its etiology.

During this long period numerous theories as to its etiology and pathology have been advanced in turn, adopted and discarded, until to-day there are many who believe that rheumatism and gout are due to a lesion of the kidneys. Ever since Garrod discovered its connection with an excess of uric acid in the blood, we have been trying to find out how this product is formed and how it accumulates in the body.

In all pathological lesions we must first have a very delicate, almost imperceptible, physiological modification in the part before we notice the first pathological change, which gives rise to the second physiological feature, when we notice symptoms; the true pathological change in structure we term a lesion.

It is generally understood that uric acid is due to defective metabolism, the disassimilation of albuminoids giving rise to uric acid through the intermediate stages of nuclein and xanthin (Kossel), which, if the emunctories be in perfect condition, are readily eliminated from the body without deleterious effects; if, however, the liver and kidneys do not act normally, it is easy to understand how the blood becomes surcharged with these effete substances.

In postmortem examination of gouty and rheumatic subjects, the kidneys are always found diseased. Critzman claims that he has always been able to find lesions of the epithelial cells of the contorted tubules. These changes in structure are due to a previous derangement of the blood-supply, either a hyperemia or anemia, which in turn is caused by a germ, either *in situ* or reflexly, by nervous stimulation or inhibition.

In cases that I have examined (postmortem) the process in most instances had become chronic, so that the primitive lesion was masked by an excessive amount of connective tissue; there was a distinct fatty degeneration of the hepatic cells, even when the parenchyma had not been obliterated by connective-tissue overgrowth. Another important feature was the invariably affected kidneys, while in some instances this had extended to the heart. The majority of the cases showed hypertrophy of the liver, but few showed atrophy. Their history usually gave evidence of the excessive use of alcohol. This probably was the cause of the first physiological change, by bringing about hyperemia which in turn gave rise to a cloudy swelling. This was followed later by a slight increase of connective tissue, which, shutting off the blood-supply through pressure and density of structure, gave rise to fatty degeneration. The degenerate cells were no longer able to perform their proper functions and thus complete normal metabolism. Of course, the pathological alterations in the parenchyma of the organ formed a favorable nidus for germs present, and, although bacteriologists have so far been unable to isolate a germ *sui generis,* there is some probability that one will be discovered; Gros[1] of Paris says: "All our clinical testimony points to the fact that acute rheumatism is an infective disease, due to a special microorganism."

Symptomatology.—There is usually a history of past attacks of a similar nature, and the patient will also usually admit having suffered from acute attacks of articular rheumatism. The symptoms are in the beginning vague, wandering, muscular and neuralgic pains, great susceptibility to change of temperature, headaches in the morning accompanied by dizziness; there are frequently hemorrhages from the nose and, when hemorrhoids exist, from the rectum. These hemorrhages usually relieve the headaches and dizziness. Fits of nervous sweating, which are localized in different parts of the body, and sometimes peculiar eruptions resembling eczema occur on the chest, abdomen, and extremities.

The urine has a high specific gravity and is surcharged with urates, lithates, and uric acid; in the advanced stage glycosuria is manifest. The appetite is poor and pica takes its place, the patient craving peculiar dishes, especially such as are acid. After eating there is a sense of heaviness followed later by pain in the gastric region, and when so-called acute "bilious" attacks occur there is great nausea, perhaps vomiting, the matter voided containing bile. At such times there is great prostration, trembling, chills, alternating fever, depression of the heart, often cramps in the muscles of the calves of the leg, inability for physical exertion, and laxity of all the muscles. This is followed by profuse sweating, and intense throbbing pains in the head, with distended veins of the temples, sometimes relieved temporarily by the vomiting. There may or may not be jaundice; this occurs more often in the case of obese subjects. It is at such times that the patient begins to realize that he has a liver because of a sense of uneasiness in that region which later develops into a dull aching pain.

The chief feature for differential diagnosis between these rheumatic "bilious attacks" (for want of a better term we prefer this popular expression) and those due simply to hepatic torpor is the excess of uric acid in the urine and the heavy deposit of urates following an attack, with the subsequent relief (which is noticeable for some days afterward), as well as the history of previous attacks of acute articular rheumatism.

Etiology.—These symptoms are due to excess of uric acid, which is not eliminated owing to the hepatic inhibition and the imperfect condition of the kidneys, which are unable to aid the liver vicariously; the result is a form of uremic intoxication and an hepatic explosion with the concomitant symptoms I have attempted to describe.

Treatment.—The cases which led to my making a study of the subject were first treated as ordinary bilious fever due to liver torpidity, with calomel, bicarbonate of soda, nitro-muriatic acid, podophyllin, etc., associated with cathartics, but with little or no benefit. As sooon as I recognized what I considered to be its true origin, the usual remedies, from potassium salts to piperazin, were tried with varying results. Colchicum and salicylate of soda seemed to give the best results, more especially when given during the crisis, as experience with these agents showed that the profuse diuresis and moderate watery evacuations succeeded in unloading the system of the pernicious toxins.

Recently the experiments of physiologists have better explained the physiological action of colchicum and salicylates. The salicylates exhibited by the stomach seem to be always taken up in the blood as salicylate of soda, but carbonic-oxide has a greater affinity for the sodium radical than the salicylic acid, consequently when it comes in contact with this reagent in the blood it liberates salicylic acid. The amount of carbonic dioxide normally existing in the blood, however, is insufficient to bring this about; but under such pathological conditions as exist in the tissues, when there are acute inflammations due to the deposit of uric acid, a considerable amount of carbonic dioxide is formed, thus liberating the salicylic acid at the very seat of the lesion. With such a drug, which can be produced *in situ,* wherever the inflammation may be, what are its properties? It is analgesic, diuretic, diaphoretic, antiseptic, antipyretic; it liquefies and increases the flow of bile from the duct, reduces hyperemia by facilitating the resolution of the products of inflammation, and, above all, causes the elimination of urea, uric acid and its salts, as well as other solid constituents of the urine in excess. I believe the best results, however, were obtained when the natural salicylate of methyl (derived from betula lenta) was used, rather than the salicylate of soda of commerce which is synthetically produced.

Colchicum is the historical specific for rheumatism and gout, and this has been so much insisted on by such eminent therapists as Wood, Bartholow, Garrod, Dyce Duckworth, Lecorche and others, that it is useless to recapitulate here. It is, however, a most uncertain drug, not without some danger on account of its violently irritating effects on the mucous membranes and epithelial tissues; the stomach and kidneys suffer from large doses of the wine or tincture, which is never twice of equal strength, even when the same sample is used after long keeping. However, the active principle, colchicine (not colchiceine, which is almost inert), is uniform in action and therefore free from all danger, as it can be given in mathematically precise doses.

Its physiological action depends upon its ability to quiet pain, diminish the production of uric acid and increase its elimination, and to promote tissue oxidation and increase the flow of bile, all of which are assisted by its diuretic and purgative properties. Taking all the features of the two drugs together their administration conjointly would seem logically correct, and in the peculiar combination known as colchi-sal we have the remedy *par excellence* for all gouty and rheumatic manifestations. Actual experience with this combination surpasses the results we might expect, much smaller doses being required than theory would dictate. I have no longer any trouble in arresting the violent bilious explosions I have described and by its judicious administration when premonitory symptoms point to an approaching attack the evil can certainly be averted.

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[1] "A Modern Study of Gouty and Rheumatic Manifestations," by Edmund L. Gros, M.D., of the Faculty of Paris, 1900.

This salt is a peculiar compound of one-fourth of a milligram of crystallized colchicine, dissolved in an excess (twenty centigrams) of natural methyl salicylate distilled from betula lenta. This is a most important detail in its manufacture, especially since the formula has been made public. It is dispensed in capsules only, the size of a pea, each containing twenty centigrams. As many as fifteen to twenty capsules can be administered daily without any deleterious results; all unpleasant symptoms, such as ringing in the ears, vertigo, delirium, congestion of the kidneys, and digestive troubles are absent. The combination is best given in small and repeated doses, distributed over a certain length of time.

Laborde, of the French Academy, has laid down some fixed rules for the administration of colchicine and these may well be applied in the case of the compound when administered for any form of uremic explosions. *First day:* Four capsules, four times a day, at quarter-of-an-hour intervals (16 capsules per diem). *Second day:* Three capsules four times a day (12 capsules per diem). In most gouty and rheumatic cases it may be necessary to continue small doses for a day or two longer, but in this hepatic variety I have not found it so; there is not, however, any danger in continuing its use. In fact, the supposed danger of accumulation has been much exaggerated in connection with all colchicine preparations.

Conclusions.—From this exposition, therefore, we may draw the following conclusions: There is a certain form of hepatitis due to excess of uric acid in the blood; this is the result of defective metabolism and, when a certain limit is reached, a toxemia results and a consequent nervous explosion with symptoms of headache, vertigo, vomiting, wandering pains, cramps, trembling of the limbs, fever, etc., which fully justify us in classifying it among the rheumatic manifestations under the name of hepatic gout, and this is amenable, like other manifestations of this class, to treatment by administration of colchicine and salicylic acid capsules, and complete removal of the symptoms may be effected if this be persistently carried out.

REPORT OF A CASE OF CEREBRAL TUMOR.

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THE subject of this sketch was Mrs. F., aged fifty years, married; of sturdy English ancestry; always healthy; never pregnant, and safely through the menopause. Her history up to the present was negative with these exceptions: Some years ago I had treated her on different occasions for hysteria; for a fractured humerus; and once for gonorrhea, the latter disease having been conveyed to her by her husband, who was under my care for the same disease. She supposed her disease to be a bladder and uterine derangement, and it seemed best for obvious reasons not to enlighten her upon the subject. The history leading up to her last illness began in July, 1899, and was diagnosed neuralgia.

She consulted me in December, 1899, when she presented the following symptoms: Severe pain of a neuralgic character over the occiput, the back of the neck, right scapular region, and at times in the right supra-orbital region. She had occasional chills, constipation, slight fever, and also presented the appearance of a person suffering from coryza. The remedies usually prescribed were given with relief of many of the symptoms. However, the head pains continued in paroxysms, but they were not so severe as to necessitate daily visits until February 6th, from which date I called daily, occasionally two or three times daily. A trained nurse was in constant attendance.

The pain in the region of the shoulder and neck lessened in severity and gradually disappeared, while the pain in the right frontal or supra-orbital region increased in severity and in the frequency of its onset. There was no appearance, history nor special symptoms suggesting cerebral syphilis. The pains were irregular in their onset; and there was no tenderness on percussion at any point. Vision remained normal. The patient could count fingers distinctly, recognize any large or small objects across the room, and had no blurring or double vision. The pupils responded to light and accommodation. The ophthalmoscope revealed optic neuritis. There were no paralyses, local or general; no numbness, hyperesthesia, paresthesia nor analgesia. The superficial, or skin and tendon reflexes, and the rectal and vesical sphincters remained under normal control. Vasomotor symptoms, such as flushes, drenching, perspiration and cold extremities were frequently observed.

The temperature remained normal until March 2d, after which date it was subnormal much of the time, with slight morning and evening variation. The pulse ranged from 76 to 104, which was the highest until February 22d, after which date it was very irregular. The character and volume varied; the action was intermittent and presented every degree of arrhythmia.

The mind remained clear until March 5th, after which date the patient talked rather incoherently at times, though she could be aroused, and fully understood all that was said to her, giving intelligent responses.

The chemical and microscopical urinary analysis revealed nothing abnormal until February 25th, when traces of albumin were discovered which continued until the end. During the later days, the amount of urine eliminated was greatly diminished with increased specific gravity; and diminished urea, pus, mucus and epithelium was found later. Catheterization became necessary and enemata were employed in addition to laxatives. Until February 14th, the symptoms all pointed to a diagnosis of neuralgia and the usual treatment for such symptoms as have been given was prescribed, namely, aconitine, $^1/_{400}$ to $^1/_{200}$ gr., every four hours: also nitroglycerin, $^1/_{200}$ gr.; phenaetin, quinine, potassic iodide; hot and cold applications, etc. Thinking there might be a specific cause, potash was given in increasing doses, up to 35 gr., then diminished, as the stomach seemed intolerant.

On February 14th there developed trembling and jerking of the left hand and arm. Pulse, 100; temperature elevated; severe pain in the head; normal consciousness. The next day there was difficulty in swallowing and her mind appeared at times dull and delirious. On examination we found she could not use the left hand or arm, though there was slight motion in the members. The left leg also was powerless. Sensation normal in both extremities. The lines on the right face were diminished, but not obliterated. The tongue was protruded in a straight line, and there was no ptosis nor rolling upward of the eye ball suggesting ocular paralysis. Respiration remained normal; pulse variable, from 60 to 120 per minute. As these symtoms developed, I thought of course the pain and paralytic symptoms were from pressure; probably a growth in the right cortex. The iodides and mercurial inunction in rapidly increasing doses and the use of diuretics and occasional purgatives were continued.

The paralyzed extremities were massaged and exercised daily. This improved the hyperesthetic condition of the left limb which had existed during the few days preceding February 25th, and also relieved the pain and swelling in the left knee and ankle, which suggested in appearance inflammatory rheumatism. Later the patient could move the left arm and hand, reaching the face, but the leg did not regain power. On the 25th she had a slight attack of trembling, followed by constant moving of the hands, marked perspiration, great restlessness and intense frontal pain for hours, which finally yielded to morphine, when she fell into a long and restful sleep. On February 26th, she again complained of severe pains in the back of the head and neck, symptoms which she had not suffered from for some time. February 28th, the pulse was very feeble; tremor of the hands and facial muscles was marked. Mental enfeeblement was pronounced, and we feared death was very near. March 3d the patient became dull, cyanotic and appeared very near death, but rallied somewhat and remained practically in the same condition until March 12th, when life was extinct.

A postmortem examination was allowed, which revealed a large tumor of partly broken-down material, the size of a small egg, in the prefrontal lobe of the right brain extending nearly to the cortical layer of tissue in front and superiorly, and well back and downward to the fissure of Sylvius. No other pathological changes were manifest. The examination showed the tumor to be a glioma; very vascular in character.

Regarding the etiology of a brain tumor of this class, many arise by metastasis from distant morbid fields, and then extend into the brain. Heredity is said to play a negative rôle. Traumatism has been considered a cause in some of these cases Glioma are among the most common forms of brain tumors, the majority occurring in early and active adult life.

This tumor as revealed by postmortem seems to have had remarkable growth for the amount of disturbance manifested, which was doubtless due to the location, namely, the right frontal temporal region, being circumscribed and well removed from the falx cerebri or other resisting structure; hence the tumor did not extend deep enough to interrupt return circulation from the ventricles, occluding the veins of Galen and the straight sinus. There was therefore no dropsical condition producing extreme pressure symptoms. It has been shown that a slow-growing mass may deform the whole hemisphere without producing any symptoms, while another tumor of insignificant volume may produce the most marked motor, sensory and mental disturbance, or lead to sudden death.

The symptoms of these tumors are thus divided: (1) General, irrespective of location; (2) focal, those dependent upon the situation of the neoplasm; (3) topical, those at the superficial site.

The general symptoms sometimes have a localizing value. They are headache, convulsions, mental impairment, optic neuritis and atrophy, vertigo, vomiting, temperature changes, alteration in respiration and pulse rhythm, polyuria, glycosuria, insomnia, delirium, stupor, coma, slow speech and malnutrition. Vertical headache was one of the earliest symptoms in this case. This location of pain is one of the least frequent and suggests cerebellar tumor. The supra-orbital pain, which was almost over the seat of the tumor, was also an unusual circumstance, as we do not usually find that the location of the pain has any bearing upon the tumor location. Cerebellar growths are often accompanied by pain in the neck, but in this case the latter existed without a growth in that location. Over one-half of all cases of brain tumor have convulsions; but this patient presented only slight Jacksonian symptoms on two or three occasions. Mental impairment, which is frequent in tumor cases, was not manifest in this case, and my patient was not at all worried over her condition; but this is characteristic of many of these cases. Her vision remained excellent, though there was double neuritis. Vomiting occurred very late and infrequently; doubtless the location of the tumor accounted for its absence, since we observe that this latter symptom and vertigo occur most often when the tumor is located at the base of the brain.

Regarding focal symptoms, left hemiplegia only was well-marked. Topical symptoms, as heat and tenderness, were not present, though headache was pronounced. In these softer growths hemorrhage may take place, occasioning some other cerebral symptoms, and I am surprised that it did not occur in this case, as there was so much broken-down material; but it was not manifest pathologically. The paralysis was doubtless due to the cutting off of the motor tracts through their course downward before entering the capsule, as the growth was located too far anteriorly to destroy their point of origin at the cortical center. We find that these gliomata are interstitial and occur most often in the deeper structures. They are insidious, of steady development and frequently occasion apoplectic seizure. This growth was apparently near enough to the surface to have been removed, had physical condition and certain diagnosis warranted; but when the character of the tumor was known, we were glad it had not been attempted, as such growths are infiltrating in character and liable to recur. The intensive iodide and mercurial treatment was given in the hope that the pressure might be of specific origin; also in the hope of improvement, even if the pressure were from some other cause than syphilis.

This case, though not unique in any respect, was interesting in many ways: (1) Its onset and general appearance, suggesting neuralgia; (2) the short duration of the symptoms of suffering in comparison to the serious ravages in the brain by the tumor; (3) the absence of so many symptoms of brain tumor when a growth of so great size and so much destruction were present; (4) the absence of mental impairment, when such an extent of damage had resulted; (5) the marked improvement in the use of the left hand and arm, when such damage had occurred in the brain; though of course this was due to the miraculous escape of some of the motor fibers from the effect of pressure, which was probably relieved by absorption of broken-down tissue, no hemorrhage having been found; (6) the early and continuous neck and occipital pain, which latter disappeared almost entirely, its place being taken by supra-orbital pain directly over the seat of tumor.

Abdominal and Pelvic Adhesions.—The formation of these is believed by M. T. Brennan (Montreal Medical Journal, May, 1902) to be avoided by the free use of sterilized olive oil at operation.

OBSERVATIONS UPON TWO INTERESTING CASES OF THE LOCAL MANIFESTATIONS OF HYSTERIA IN JOINTS AND MUSCLES.[1]

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The histories of these patients, the first a case of hysterical condition of the ankle-joint and the second a case of acute spastic torticollis associated with hysteria, are as follows.

Case I.—Male, aged thirty years, single, detective. While walking over some rough ground at the Pan-American Exposition on September 11, 1900, the patient stepped on a loose stone which slipped, causing a sudden violent inversion of the left foot. He felt a sharp pain along the inner sole and instep, but managed to walk home. He continued at his work for a week, during which time the foot was slightly swollen and discolored, and ached continually. He consulted in succession two surgeons, who treated him chiefly by rest in bed and local measures, fly blisters, poulticing, hot stupes, and a series of six plaster-of-Paris casts to obtain immobilization. The pain in the foot continued and became almost unbearable, and the question of operation was discussed although no evidence of inflammation or pus formation was present. In December, Dr. J. W. Putnam was called in consultation and he diagnosed a hysterical condition of the ankle and asked the writer to treat the case.

Examination, December 27, 1900. A tall, slender, pale-faced man of very nervous appearance, rapid in conversation, quick to answer or ask questions, in gesture and in change of expression like a Frenchman. His ability to remember details was astonishing, and his favorite hobby, chess and checkers, gave him opportunity to display this faculty, for nothing had pleased him more than to sit blindfolded and play six games of checkers and six games of chess at once and win them all against twelve opponents. He informed the writer that his family and personal histories were negative, that his general health had been excellent and was yet very good considering his fourteen weeks' rest in bed and continued loss of sleep. A support held the bed-clothes away from his foot, which was enclosed in a plaster-of-Paris cast. The cast was removed with difficulty as the least jar to the bed or leg gave him increased pain. The foot was found to be in a position of extreme plantar flexion and held rigidly in the one position. He was as unable to move the foot or toes as if the member were completely paralyzed. No signs of inflammation or swelling were apparent. On the contrary it seemed like the foot of a cadaver, very pale, bloodless and cold. The slightest touch, the faintest breath of air caused excruciating pain. Firm, deep pressure upon the bones, however, produced only an ache. When blindfolded the patient could not feel the current from the electrode of a faradic battery applied over the instep and inner side of the foot. The muscles of the calf showed normal faradic contractility, and the contraction caused pain. The right calf measured in circumference 13¼ inches, the left 12 inches, an atrophy of disuse of 1¼ inches. The knee jerks were normal. His temperature was found to be 97.5° F. in the mouth, and physical examination proved negative. No attempt was made to test the mucous membranes for anesthesia nor the eyes for concentric diminution of the visual fields on account of the peculiar temperament of the individual.

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[1] Read at a meeting of the Medical Section of the Buffalo Academy of Medicine, March 11, 1902.

The treatment to be pursued was then outlined to the patient. He was told that the present condition of his foot showed that the inflammation had subsided, that the results of his injury needed treatment of an active nature and instead of amputation a useful foot would be restored to him. The support for the bed-clothes was to be removed, the plaster-of-Paris cast was to be used at night only and soon not at all. He was ordered to sit up each day in a chair, gradually increasing the time spent in the upright position. A Kelly hot-air apparatus was placed about the foot and a twenty-minute treatment given, followed by an attempt at passive movement of the ankle-joint. This treatment increased his pain but he was informed that the heat produced the pain by dilating the blood-vessels and improving the circulation. Lac asafœtidæ, ℥ss t.i.d., was ordered and the hot-air treatments and passive movements were repeated every second day.

January 2.—The cast had been replaced on the foot at night only and the patient sat up all day in an easy chair. The pain and tenderness had not diminished, but he could endure greater heat for a longer period of time. Strong pressure on the sole caused a little motion toward dorsal flexion. The temperature by mouth ranged between 97 and 98° F., and there was a rise to normal or above after each hot-air treatment.

January 9.—Marked improvement was now evident. The pain had lessened. It was possible to bring the foot to a right angle and the patient took pleasure in placing the sole against the floor and moving the foot. For the first time voluntary motion was seen and the toes could be slightly flexed and extended. The cast was thrown away and massage of the calf muscles added. Unfortunately the patient's mother did not believe in these heroic treatments, and continually did all she could to prevent her son from carrying out instructions and to undo the good accomplished. It regularly required more of the writer's time and patience to treat her mental condition than to care for the patient himself.

January 16.—Continued improvement. Applications of faradic electricity were added to the massage, hot-air, passive and active movements. It was noticed that several circular hyperemic spots, from ⅛ to ¼ inch in diameter appeared on the dorsum of the foot and remained for several hours. Some beads of sweat were present after the hot-air bath.

January 25.—The asafœtida was stopped and maltine with hypophosphites was ordered. The patient felt the electric current on the dorsum of the foot. With the aid of crutches he walked about the house bearing some weight on the foot.

February 6.—The left calf had increased in circumference ⅜ of an inch. The patient voluntarily brought the foot to a right angle. The foot was flushed in appearance and very sensitive to the faradic current. Sleep had been undisturbed and the pain was of a dull, aching character.

February 8.—The previous evening a puffy swelling had appeared on the instep and an increase of pain was noticed. The foot was hot, hyperemic and perspired readily. The hot-air treatments were discontinued.

February 21.—The crutches were discarded and a cane was employed. The foot was placed in a shoe for half an hour. Alternate douches of very hot and very cold water were given.

March 9.—The shoes have been worn for ten hours daily, and considerable exercise indulged in without the use of a cane. Only one-half inch difference in circumference between the calves remained. A slight persistent dull ache was the only complaint.

In December, 1901, the writer saw the patient running at the top of his speed to catch a car. His gait showed no sign of any previous trouble in the foot.

Case II.—School girl, aged fifteen years. In December, 1900, the patient contracted a severe sore throat and at the same time noticed a swelling in her neck which afterward proved to be a goiter. While she was recovering from the sore throat she observed that the muscles of the right side of the neck at times would "jump," causing the chin to turn to the left. These spasmodic contractions soon became persistent and tonic contraction resulted, changing the position of the head and causing considerable pain in the muscles and in the right side of the head. She consulted a physician who treated her with static and faradic electricity but her condition persistently grew worse and the goiter increased in size. She then consulted Dr. N. G. Russell, who ordered an ointment to be rubbed in the skin over the goiter, and who gave her iron as the blood examination showed a diminution of hemoglobin. Dr. Russell noticed her hysterical condition and referred her to the writer for treatment for the torticollis.

Examination, July 3, 1901—Family history, one sister has had neurasthenia. Personal history: The patient has never had a serious illness and is now a well-built girl, large for her age. The characteristic position of the head in wry neck was very noticeable, the chin elevated slightly and turned to a point about midway between the left shoulder and the middle line of the body. A decided inclination of the head toward the right shoulder was present. On loosening the dress the thyroid gland showed a moderate and uniform enlargement. The usual compensatory convexity of the cervical spine was apparent. Palpation of the neck demonstrated that the upper part of the right trapezius was the muscle mostly affected and to a lesser degree the right sternomastoid. The muscles underlying the trapezius felt harder than normal and all the muscles involved were tender to pressure. Raising the patient in the Sayre's suspension apparatus caused pain and brought out in bold relief the muscles at fault. Various stigmata of hysteria, anesthesia of the mucous membranes of the eye, nose and pharynx were present. No anesthesia of the cutaneous surface and no limitation of the visual fields could be found. A good prognosis was given, based on the age of the patient, the short period of time since the onset and presence of hysterical symptoms. Treatment consisted in the following: (1) Repeated assurances of recovery, *i. e.*, suggestive theraputics. (2) Lac asafœtidæ ℥ss t.i.d. (3) Stretching of the neck muscles by raising the patient in the Sayre's suspension apparatus on her tiptoes for two minutes three times a week. (4) Exercises, especially designed to stretch the contracted muscles and exercise the opposing muscles, three times daily. (a) Rotation of head to right as far as possible. (b) Flexion of head on chest, keeping the chin near the median line. (c) Extension of head, combined with an attempt to hold the head in the median line. (d) Movement of head toward left shoulder, combined with an effort to rotate chin and occiput to the median line. (e) Various movements of the left arm bringing into action the left trapezius and left sternomastoid. (5) General directions. A rest for one hour on a sofa morning and afternoon. Regular exercise and regular meals. To retire at 10 P. M. and sleep on left side and back, not on the right side only. To give up school, all reading and study. To avoid social gatherings and the theaters.

July 15.—Marked improvement was already evident. The pains in the neck and head were present for two hours only each morning. In consequence sleep had been undisturbed. The patient could hold her head in better position and could voluntarily force the chin to the median line. Suspension caused very little discomfort.

July 26.—So much relaxation of the muscles existed that various exercises with the right arm were instituted to bring under voluntary control the right trapezius and right sternomastoid.

August 2.—The goiter was hardly apparent. The patient had had no pain for four days and could force the chin half way round toward the right shoulder. The left arm exercises were omitted and the right continued to overcorrect the deformity.

August 7.—Pain had been felt for a short time in the morning and rarely there was a spasmodic jump of the muscles, which were softer and less tender to the touch. The patient went away for a vacation, returning in September, when examination showed that the wry neck position was not yet entirely overcome. She declared herself well, so the exercises alone were continued and the warning given that if the symptoms returned after commencing school to remain at home.

October 11.—As was expected, study and the confinement of school disagreed, causing some pain and contractions, so it was decided she should leave school for the winter.

January 1, 1902.—The patient was in excellent condition. She had gained about fifteen pounds during the past six months and had continued to exercise and lead a quiet regular life.

These two cases have been reported together because of certain similarities in their etiology, symptomatology, diagnosis and treatment. In each the local manifestation of an innate tendency to hysteria was produced by a peripheral irritation as an exciting cause, in the one case an injury, and in the other case an inflamed throat. Indeed, this is true of the great majority of hysterical affections—there is a preceding injury, disease or mental shock which develops the hysterical condition, while in very few cases do we find no antecedent etiological factor. In each case lack of recognition of the hysterical element led to the institution of treatment on a wrong basis with the consequent increase of symptoms. In each case there were certain necessary essentials to insure success,—absolute diagnosis of the condition, mental command of the patient, promise of recovery and strict adherence to a definite form of treatment. Suggestion alone would have been of no service, but active treatment to improve the general health, to stimulate the local circulation and to exercise the muscles was imperative.

The foot is usually held in a position of talipes varus or valgus in cases of hysterical ankle-joint. Dorsal or plantar flexion is rare. In Church and Peterson on Nervous Diseases, p. 556, may be seen the photograph of a case exactly similar to the one reported, in which the position of the foot, contraction of the muscles and atrophy of the calf are seen. Commonly the surface temperature about the joint is reduced, and sometimes congestion and discoloration are present. Since Brodie called attention to this class of cases in his "Diseases of the Joints" (2nd edition), the treatment has been greatly elaborated. Severe counterirritation, as the fly blister and cautery, calls the attention of the patient too strongly to the joint; and hot air, faradic electricity, passive and active motion with massage are advisable. Temporary support by crutches or brace is useful to increase confidence, but they must soon be discarded. Successful results may not be attained until the patient is removed from home and from the influence of friends and relations. In cases of several years' standing in which deformity has persisted, tenotomy is necessary, as recommended by Keen, Bradford and others.

According to Gowers cases of wry neck in females under thirty years of age are often of a hysterical nature and this is probably true of males of the same age. Whitman,[1] in a study of 212 cases of torticollis, found but one case associated with hysteria, but 181 of the cases were of the class of acute spastic torticollis due to irritation of the peripheral nerves of the nasopharynx, the muscles involved being those supplied by the spinal accessory. Gowers states that fly blisters are of great service in hysterical cases, and that rarely after an apparent cure relapse may occur and the persistent form of wry neck develop.

MEDICAL PROGRESS.

MEDICINE.

New Reaction for Diacetic Acid.—While working on the determination of sulphuric acid in urine, E. RIEGLER (Medecin. Blät., Apr. 3, 1902) discovered a new test for diacetic acid. Fifteen cubic centimeters of urine are acidulated with from five to ten drops of concentrated sulphuric acid; when two or three cubic centimeters of an aqueous solution of iodic acid are added, an intense pink color will appear, which is not taken up by chloroform. Other substances that are liable to occur in urine were tested but none gives the same reaction, which is still strong when the ferric chloride test fails.

Treatment of Diphtheria.—A valuable adjunct to the injection of antitoxin serum is believed by E. W. SAUNDERS (St. Louis Cour. of Med., Apr., 1902) to exist in the administration of pilocarpine. The benefit is supposed to depend upon the stimulation of the excretion of the toxin which the drug induces and the increase of the leucocytes. The specific action of the antitoxin is manifested in a varying interval, which ranges from twelve to thirty-six hours, and during this interval the organism is at the mercy of the diphtheria toxin, which may initiate a degeneration of the nerves or of the cardiac muscle. It follows that paralysis may result in spite of treatment with antitoxin, which can only neutralize the free toxin in the blood. In all cases, therefore, exhibiting an exudate or a pseudomembrane in the faucial mucous membrane he administers pilocarpine at once in doses sufficient to cause salivation and diaphoresis. In any case in which diphtheria is at all suspected a culture should be at once taken and a dose of antitoxin injected. Special attention should be given to the antitoxin used, for it is liable to deteriorate rapidly and should never be used unless it has been withdrawn from the animal within six weeks.

Diet in Chronic Nephritis.—The proper regulation of the diet in chronic nephritis constitutes almost its entire therapy and it is of the greatest importance for the patient to avoid irritating articles of food. It is for this reason that milk is so often ordered, but many patients cannot take it for long periods. J. WICZKOWSKI (Wien. klin. Rundsch., Apr. 20, 1902) analyzed the amount of urine and the percentage of albumin voided by a large number of individuals suffering from chronic parenchymatous nephritis, and finds that the quality of the food, whether this consist solely of milk or of white or even dark meat, has no appreciable influence. In those cases in which there is a tendency to cure or improvement, this continues nevertheless; in the severe cases even milk can not delay the fatal issue. In fact, a varied diet is to be preferred, since with it the appetite improves and the general condition of the patient becomes more satisfactory, so that on the whole life is lengthened.

Hemoptysis and Its Treatment.—There are few conditions in medicine which require so much presence of mind and correct judgment as does the occurrence of a hemorrhage in tuberculosis, for it is not only the loss of blood, with its symptoms, but also the extremely depressing effect which this catastrophe has upon the usually hopeful patient that require tactful management. A. R. VON WEISMAYR (Wien. klin. Rundsch., Apr. 20, 1902) states that the hemorrhages are due to aneurismal dilatation of the blood-vessels where they lack support in the walls of a cavity, or else are dependent upon changes in the vessel-walls themselves. Most often branches of the pulmonary artery are involved. Very often a latent tuberculosis manifests itself first by a hemoptysis, after which the process becomes more acute; conversely, it may have a salutatory effect in that it brings the patient to the physician. Hemoptysis occurs in about 30 per cent. of the cases; fatal hemorrhages occur in 0.15 per cent. There is no direct relation between the frequency of hemorrhage and the intensity of the disease, since, in addition to the stage of cavities, it occurs most often in the initial period and has also been seen when complete cicatrization had already set in. The blood lost varies within wide limits; the largest amount recorded is 9,250 cubic centimeters in one and one-half months. It injures the body not only in general by the anemia it causes, but also injures the lung directly by infiltrating and compressing the air-cells and perhaps by bringing about an aspiration pneumonia. Fever occurring after hemoptysis is generally an unfavorable symptom. Concerning treatment, an occasional streak of blood calls for no interference; if, however, this occurrence repeat itself frequently, absolute mental and bodily rest should be ordered; the patient should be put on fluid diet and the cough diminished by a narcotic. For large hemorrhages posture (elevated thorax) is of importance. Every attempt is to be made to influence the patient psychically to remove that mental agitation which predisposes to further accident. By means of an ice-bag over the heart and by tying off the extremities the pressure in the pulmonary circulation is diminished, but care must be taken to relieve the venous stasis in the arms or legs only gradually when pain is felt, else the sudden rise will be followed by a new hemorrhage. In general, morphine does little good in the more severe forms. The same may be said of the hemostatics with the exception of oil of turpentine and even gelatin should deserve little popularity. The expectoration of the exuded blood is rarely necessary, except when suffocation is feared. It is best to put the patient on cold milk during the dangerous period, to keep the bowels open with enemata of plain water, and not to let him get up until the sputum has been free from blood for three days.

Epidemic Parotitis.—The occurrence of an epidemic of mumps in the city of Prague has led to a careful study of this disease by F. PICK (Wien. klin. Rundsch., Apr. 20, 1902). In general the epidemic had the usual characteristic, but adults were quite often affected and in a large number of cases the testicle was inflamed. In not a few of these it was the epididymis rather than the testicle, and the possibility of wrongly diagnosing a tuberculous or gonorrheic affection is pointed out. The only other complications seen were phlegmonous angina in two cases, and in several tenderness over the epigastrium, to be attributed no doubt to swelling of the pancreas. Bacteriological examination of the blood at the height of the fever was always negative, while by puncturing the parotids cocci resembling the meningococci were obtained which were not, however, further investigated. Blood-counts showed that even during the periods of highest temperature there was no leucocytosis, but a slight relative increase of the mononuclear elements could be determined.

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[1] Orthopedic Surgery, 1901.

Dyspneic Coma in Uremia.—The air-hunger, first described by Kussmaul was for a long time considered characteristic of intoxication by oxybutyric acid, as it occurs only in diabetic coma. Later investigations, however, showed that a similar symptom-complex may occur in a number of other conditions, such as severe anemia, carcinoma, cachexia, gastroenteric disturbances, and salicylic-acid poisoning. The possibility of the dyspnea being uremic had already occurred to Kussmaul, but the absence of headache, slowing of the pulse, diminished diuresis and catarrh of the finer bronchi in diabetic coma led him to consider it something different. F. Dineles (Wien. klin. Rundsch., Apr. 20, 1902) has observed a case of pure uremia in which acetone and diacetic acid could be detected in the urine and in which a distinct diabetic air-hunger was present, while in several similar ones no excretion of acetone or allied bodies occurred. No disturbances of heart or respiration were present to explain the symptom; probably an irritation of the respiratory center existed. The character of the renal change played no part, since in his patients the various, different lesions of chronic nephritis were found; a point of importance, however, was the fact that epileptic attacks did not occur.

Contributions to the Malaria Question.—Experiments upon the artificial transmission of malaria by the mosquito lead S. Purjesz (Wien. klin. Rundsch., Apr. 20, 1902) to the following results: (1) Healthy persons can be infected by the sting of the Anopheles mosquito which has been allowed to suck blood containing crescents capable of further development, if the insects be kept in a thermostat under suitable conditions. (2) The sting of a single insect is sufficient to infect. (3) Since all persons experimented upon acquired malaria, the question of an immunity could not be settled. (4) The time between the inoculation and the appearance of the first symptoms varied from seven to eleven days and the statement of certain authors that malaria can be acquired in so short a period as half an hour is discredited. (5) In no case did the disease begin with a definite chill, but the fever, at first slight, gradually increased in intensity, which seems to show that a constant multiplication of the parasites is going on in the blood and that a large number is necessary for a chill. (6) The variations in the period of incubation did not necessarily stand in relation to the number of Anopheles by which the individual was bitten, but other unknown factors must be drawn into consideration. (7) During incubation, absolutely no subjective symptoms were noticed. (8) The condition of the spleen was not constant; in some it was swollen before the first rise of temperature; in others it could be felt only after the fever. (9) The type of the malaria artificially induced always resembled that of the patients from which the mosquitoes were allowed to obtain their crescents and the same parasites were always found. (10) The peripheral blood at the beginning of the illness never contained any crescents. (11) Of great practical importance is the fact that full doses of quinine, given as a prophylactic, did not prevent the appearance of the fever with its usual symptoms.

Pneumococcus Sepsis.—Although general septic conditions due to the pneumococcus are not uncommon, the observations made on a certain series of cases by Prochaska (Deut. med. Woch., May 22, 1902) may have an important bearing on the etiology of the process. In one case during the course of an acute febrile bronchitis, there came on a hemorrhagic nephritis. Examination of the urine showed the presence of the pneumococcus, which was also found in the blood and sputum. Two others cases of bronchitis were accompanied by recurrent chills and showed an enlarged spleen; the blood was free from plasmodia, but contained numerous pneumococci. A fourth case, beginning in a similar manner, rapidly went into collapse with high fever, cyanosis and orthopnea. The pneumococcus has often been found in the blood of pneumonia patients without there being present the signs of the septic conditions which were so marked in the author's cases. Moreover, in these patients no physical signs of pneumonia could ever be demonstrated—not even in the one case in which an autopsy was done, and the author believes that the bronchitis which was present in all afforded the point of entrance for the germs, and that no intervening pneumonic process resulted.

Diabetes Mellitus from Diabetes Insipidus.—The relation between these two conditions has been frequently noted. But little has been done in experimental investigation of the interdependence of the two diseases since Bernard, through puncture of the floor of the fourth ventricle at a point somewhat higher than that of the so-called diabetic center, produced polyuria without glycosuria. Clinically, however, there are many evidences that diabetes insipidus and mellitus are closely allied. Many cases of tumors, cysts, etc., of the brain encroaching upon the floor of the fourth ventricle in certain instances are accompanied by simple polyuria; in others, by glycosuria. Traumatism, especially involving the central nervous system, and psychical emotion may produce diabetes insipidus or mellitus. Diabetes insipidus may occur in members of a family in which there is or has been a case of diabetes mellitus; and finally, in the same individual diabetes mellitus may change to diabetes insipidus and vice versa. The former change is not infrequent, but there have been previously recorded but four instances in which diabetes mellitus has developed from diabetes insipidus. L. D'Amato (La Riforma Medica, May 13, 1902) contributes to the literature of this subject a description of two cases, in one of which diabetes insipidus, as indicated by extreme polyuria and intense thirst, lasted for thirty years, at the end of which time excessive hunger, emaciation, muscular weakness, etc., developed in addition to the already-existing symptoms, and examination of the urine revealed sugar in large quantities. An interesting question is raised by the author, namely, whether diabetes mellitus was superposed upon the diabetes insipidus or whether the former simply succeeded the latter. The favorable influence of a rigid diet upon both polyuria and glycosuria, as is the case usually in diabetes mellitus, furnishes evidence, in the writer's belief, that the latter succeeded the diabetes insipidus, otherwise the polyuria would have remained unchanged. The various theories which have been advanced as to the nature of the relation between these two conditions are reviewed, but no definite conclusions are reached.

Chronic Gastritis.—A discussion of the symptoms present in chronic non-alcoholic gastritis with numerous reports of histories is given by G. R. Lockwood (Med. Rec., May 31, 1902). He divides the cases into six classes depending upon the degree of gastric secretion and the presence or absence of atony; (1) Hyperacid cases without atony; (2) hyperacid cases with atony; (3) normal cases without atony; (4) normal cases with atony; (5) anacid cases without atony; (6) anacid cases with atony. In the first class, frequently the only symptoms present are referable to the increased acidity and consist of a burning or gnawing sensation which is relieved by eating or taking bicarbonate of soda. They are often treated as gastric neuroses. Another class of cases coming under the first heading give symptoms which seem to be entirely due to an increased peristalsis, caused by the irritation of the small intestine by too acid chyme. There is no pain or stomach distress and the symptoms are entirely referable to a persistent diarrhea. The stools have the appearance of small intestine stools and contain neither mucus nor blood. All treatment proves unavailing till an antacid treatment is instituted. Examinations of stomach contents afford the only means of diagnosis. The absence of stomach symptoms in these cases without atony is worthy of note. Nausea and pain are seldom seen, the appetite is normal or increased and vomiting rarely occurs. In the second group of cases, those due to hyperacidity with atony, the symptoms were those of acidity (burning, gnawing), accumulation of gases and constipation. These again are by no means characteristic and the true cause could be recognized only by examination of the stomach-contents. Atony alone and gastroptosis may give the same symptoms. The question of food retention is interesting in connection with gastric fermentation. Gas was a marked feature in nearly all these cases, but it was noticed that when test-meals were withdrawn four and five hours after eating they did not differ from those withdrawn from the non-atonic cases and fermentation could not be subsequently artificially induced. The writer's theory is that Nature endeavors to neutralize the hyperacidity by the swallowing of an alkaline saliva and that the gas in these cases is simply swallowed air. This is corroborated by the fact that gas occurs more frequently in hyperacidity than in low acidity, in which fermentation should more easily occur. Gastritis with normal acidity without atony seldom gives any symptoms referable to the stomach, and even when atony is present there may be no symptoms except that of gas so common with atony. Of the cases of gastritis with anacidity and without atony several presented symptoms which resembled very closely the cases of hyperacidity. Three of them complained of intestinal symptoms, of diarrhea and emaciation, two complained simply of biliousness and several gave no stomach symptoms at all. The author reaches the following conclusions in regard to cases of non-alcoholic gastritis, which are in many respects contrary to the generally accepted ideas: (1) The appetite is good. The few exceptions are observed in cases of advanced atony in which the quantity of food is not well borne and in cases of neurasthenia. (2) Pain occurs in two ways, from acidity, differing in no way from similar cases of nervous hyperacidity, and also due to gas, but the pain differs not at all from that observed in cases of atony without gastritis. (3) Nausea does not occur in relation to meals, but usually appears when the patient is nervous or tired. (4) Vomiting does not occur in the non-alcoholic cases. (5) Unless there be diarrhea the nutrition is good and the patients are not anemic. If diarrhea be present gastric analyses alone will enable a diagnosis to be made, for diametrically opposite conditions may produce the same symptoms. Anemia and constipation are the chief and only symptoms in a great many cases of even well-marked gastritis and their continuance without cause should justify a stomach analysis.

Cryoscopy of Blood and Urine and Its Clinical Value.—An exhaustive review of the present status of the determination of the freezing-point of blood and urine as an index of various forms of renal insufficiency is furnished by H. ROEDER (Archiv f. Kinderheilkunde, May, 1902). One must go back to the physicochemical researches of Van t' Hoff to understand this method, which was introduced into clinical medicine by Dreser and Von Korany. According to the law of Van t' Hoff, the osmotic pressure of a solution is, like that of a gas, dependent on the number of dissolved molecules and is as large as that of the corresponding gas. Hence the osmotic pressure is dependent on the molecular concentration of a solution. In connection with this it must be noted that substances having the same osmotic pressure have the same freezing-point. Inasmuch as certain substances exist in solution under the form of electrically-charged ions, the latter influence the osmotic pressure in the same way as molecules. From the above facts it can be seen that the determination of the freezing-point of a liquid furnishes an indication of its degree of concentration. Moreover, since the electrical conductivity of a solution is dependent on the number and character of its ions, the determination of their conductivity would serve as one of the methods of the determination of its freezing-point. Only the crystalloid bodies, such as salts, acids and bases, influence the osmotic pressure, the molecular concentration and the freezing-point of a solution, while the colloids such as albumin, dextrin, gelatin and other bodies, have almost no effect upon it. For example, a proteid molecule with a molecular weight of 14,000, taking up 14,000 times the space of a molecule of oxygen, has only the same influence on the osmotic pressure of a solution as the latter. The application of these principles of physical chemistry is of eminent value in the diagnosis of the different degrees of renal insufficiency. If the capacity of the kidneys be impaired, so that they can no longer normally separate the dissolved substances from the solutions, namely, the blood and lymph, that flow through them, then there occur marked changes in the osmotic pressure, hence in the freezing-point of these solutions. Renal insufficiency indicates a retention in the body of the products of metabolism. The constancy of the molecular concentration of the blood indicates that the action of the kidneys which decreases this concentration is neutralized by the wear and tear of the tissues which tend to increase it. In cryoscopic experiments, the normal freezing-point of dog's blood, 0.56° C., has been taken as a physiological standard. Bilateral nephrectomy performed on a dog causes a retention of metabolic products, a rise in molecular concentration and a lowering in the freezing-point of the blood. The resection of one kidney does not lead to retention, if the other kidney be intact. If the latter be injured in any way retention occurs. The effect of renal poisons is generally bilateral and leads to a lowering of the freezing-point of the blood. This is markedly seen in poisoning by cantharides, which affects mainly the blood-vessels of the kidneys, and in the toxic action of aloin, which affects all the renal tissues. Potassium chromate causes the same effect by acting toxically upon the tubular apparatus of the kidneys, while poisoning with potassium oxalate leads to the same result by the production of artificial infarcts. Not only to the physician, but also to the surgeon, the cryoscopy of the blood and urine is of value. According to Lindemann, it is of practical importance in the differential diagnosis between simple albuminuria and that due to inflammatory changes in the kidney.

Pneumococcus Arthritis.—One of the most important contributions which bacteriology has made to medicine is in the differention of the various inflammatory conditions of joints. One no longer classes every acute arthritis under the general rubric of "rheumatism," but distinguishes, according to the infective agent, a streptococcus, a gonococcus, a typhoid or other form of inflammation. Pneumococcus arthritis, of which but little is known, has now been carefully described by Dr. Cole of Johns Hopkins (Am. Med., May 31, 1902), with an analysis of all the cases hitherto described. The cases may be divided into two classes, namely (1) those which appear as complications or sequels of acute lobar pneumonia, and (2) those which precede or occur independently of that disease. The former group includes 34 of the 41 collected cases. In 16 of them but a single joint was affected and 10 of these recovered; of the other 18 with multiple foci only one recovered. The second group of cases is extremely meager, owing to the fact that attention has not hitherto been drawn to the condition and that bacteriological examination is not generally practised. The clinical picture is rather variable. The condition may from the outset resemble a pyemia, with the simultaneous appearance of several scattered foci; or the disease may be progressive, one organ after another being involved; or, rarely, the focus of inflammation may remain single. The disease manifests a tendency to involve the larger joints, though the small joints are not spared. It is very frequently polyarticular (13 out of 41 cases). There is a predilection for joints already the seat of a chronic affection, such as gout, old injury, etc. The effusion is usually purulent, but may be serous. The joint clinically resembles the usual type of an acute articular rheumatism. The general picture and the prognosis, however, depend for the most part on the septicopyemia of which the joint affection is but one manifestation. The mortality is high, especially in the septic cases. When recovery occurs, the course is usually a long, slow one, and ankylosis is apt to result. Treatment consists in freely opening and draining the joint. Mild infection of the smaller joints sometimes recover under conservative management.

SURGERY.

Treatment of Furuncles.—The abortive treatment of furuncles and carbuncles by subcutaneous injections of carbolic acid and doing away entirely with incision, was first proposed over twenty years ago. This method has not been employed to any great extent and its originator, Bidder (Deut. med. Woch., May 8, 1902) again calls attention to its technic and advantages. The procedure is briefly as follows: The needle (preferably of fairly large caliber) of a hypodermic syringe filled with a 2-per-cent. watery solution of carbolic acid is plunged into the skin at the circumference of the furuncle and pushed on through its center until the point enters the soft tissue beneath. A few drops of the solution are injected and the needle is withdrawn. The latter is again thrust into the abscess in a similar manner at a diametrically opposite point and the remainder of the solution injected. This usually flows out through the opposite opening or through any fistula which may be present. A dry or, when indicated, a wet antiseptic dressing is applied and changed on the following day. The pain disappears for a time and usually returns and lasts for several hours, but the subsequent relief is permanent. In large carbuncles, four or more injections may be made. The advantages of the method are quick healing, with very slight resulting scars.

A New Method for Performing Nephropexy.—Among the numerous operations devised for anchoring a floating kidney, but few have proven satisfactory. The essential principle is believed by H. D. Beyea (Penn. Med. Jour., May, 1902) to be the avoidance of any direct injury to the kidney parenchyma or capsule through cicatricial change, as must occur in the suturing (Senn) or any capsule-splitting operation. He has devised an operation by which the kidney is maintained in position without any injury to its structures. An incision is made parallel to and about four finger-breadths from the spinous processes, extending 3½ inches down from the last rib. The intervening fascia, fat, and muscles are separated and the kidney delivered out of the wound. Two soft-rubber drainage-tubes are then passed through openings in the perirenal fascia at the hilum of the kidney on either side of the ureter and vessels. They are made sufficiently long to surround the kidney when it is replaced and to project from the wound. The muscles and skin are sutured around the tubes. A piece of gauze is placed over the wound and the tubes are gently pulled and tied over it. They are removed in three weeks, the wounds healing promptly. This method secures the formation of two connective-tissue tubes which after contraction form two cords encircling the kidney above and below the hilus, with adhesions to the capsule and to the perirenal fascia. Eight patients were thus operated on, with the result that the symptoms were relieved and the kidney was in position two years or more after operation.

Indications for Nephrectomy.—More thorough examinations of the kidneys and their excretions have recently enabled surgeons to perform the more radical operation of nephrectomy with a mortality decreasing from 60 per cent. in 1890 to 20 per cent. in 1899. J. Wiener (Med. Rec., May 10, 1902). enumerates the indications for this operation and reports cases to illustrate the varieties. The cystoscope and ureteral catheterization have been great aids in determining the site of the lesion and also in forming a true estimation of the functionating power of the other kidney. During infancy the indications for operation fall into two groups, congenital malformations and new growths. The former usually consist of some obstruction to the flow of urine and, if severe, may cause a hydronephrosis and the parenchyma may become entirely obliterated. Tumors of the kidney in children occur with maximum frequency during the first five years of life. The disease is usually sarcoma and in most cases tumor is the first symptom. In adolescence the indications for nephrectomy consist in a majority of cases in the presence of a pyelonephritis or of a septic nephritis of hematogenous origin following one of the acute infectious diseases. He reports a very interesting instance in which, after he had opened a perinephritic abscess, the patient did not improve, but still showed signs of septicemia. The wound was opened several times and finally the kidney, which was small and apparently normal, was incised and found to be filled with small abscesses. In adult life the indications for nephrectomy fall into four classes: (1) Hydronephrosis; (2) pyelonephritis and pyonephrosis; (3) tuberculosis; (4) malignant growths. Kidney infections occur either as ascending infections from the bladder or as hematogenous infections. The former are usually secondary to cystitis with an obstructed outflow from the bladder.

Subcutaneous Injections of Paraffin.—New York is not alone in possessing surgeons who have bestowed much time on this new method of correcting facial deformities. Walker Downie (Brit. Med. Jour., Apr. 3, 1902) cites a number of cases and presents photographs which show such startling changes to have occurred in the configuration of individuals as to make one wonder whether they may not have been molded entirely by human rather than divine hands. Most of the work has been accomplished on syphilitic noses in which the septum had in part or in whole sloughed away. The technic is not in any way involved. Sterilized paraffin, with a melting point of 104° F., is injected from a serum syringe previously heated, the nose being kept hot by warm dry sponges held over it and the needle by having a current of electricity passed through it. The parts must be as carefully prepared as for a regular operation. In one case two drams were injected through a single puncture, the difficulty being more in limiting the distribution of the paraffin than in effecting it. To this end, digital pressure about the area injected usually suffices, but it may be necessary to second it by an application of celloidin. Immediately after the injection and for about twenty-four hours there is an intense and apparently alarming pallor of the skin which covers the padded area. Neither pain nor discomfort nor rise of temperature should take place; the pallor is supplanted by an active hyperemia of the part. This slowly wears away, leaving the foreign body below it—an invisible, but invaluable, fragment of the syphilitic's bony system.

Surgery of the Liver.—Operations on this organ have been seldom done on account of the dreaded hemorrhage and the uncertainty of the physiological after-effects. The question of intra- or extraperitoneal treatment after resection of liver substance is discussed by C. Beck (Jour. Amer. Med. Assoc., Apr. 26, 1902). He reports a case in which a large angiomatous tumor of the liver was successfully removed by resection after the application to the stump of two rubber catheter ligatures which were left in place until the fifth and eighth days respectively. No sutures were used and firm adhesions formed between the stump and abdominal wall, leaving a sinus which gradually closed. The author believes the intraperitoneal method is preferable and from his experiments on dogs shows that a portion of the liver can be resected after clamping between the abdominal walls by silk sutures passing through fascia, peritoneum and liver substance, using large flaps of each. He concludes that previous anemization of the part to be amputated is necessary, and that for the support of the ligatures living tissue from the same animal, *i.e.*, fascia and peritoneum, is best suited.

Local Anesthesia for Major Operations.—The increasing use of cocaine and infiltration anesthesia in cases in which general anesthesia is undesirable has led to the report of a great variety of operations done by this means. W. C. Wood (Brooklyn Med. Jour., June, 1902) has devised a simple and easily extemporized apparatus for the infiltration method. The two-way cork of a Potan aspirator is inserted in an ordinary bottle with a rubber tube extending to the bottom. To one arm of the stopper are attached the tube and the needle; to the other is attached the double bulb of a Paquelin cautery. This gives a constant air-pressure sufficient for infiltrating ordinary tissues, but not a heavy scar. The author has done, among others, the following operations: (1) Amputation of the forearm, the infiltration being done in a circular ring above the elbow, about three inches broad. Incisions were then made along the course of the median, ulnar, and musculospiral nerves and ten drops of a 1-per-cent. cocaine solution injected directly into the nerve trunks. The amputation was done above the wrist. (2) Bassini operation for femoral hernia. (3) Suprapubic cystotomy for retention due to carcinoma of the prostate. (4) Ovariotomy for multilocular adenocystoma in an emaciated woman of sixty-seven; the abdomen was opened by a four-inch incision, the cysts tapped, and the pedicle clamped, cut, and sutured. The only pain was due to traction on the abdominal walls. (5) Laparotomy for inflamed intraligamentous cyst, aided by chloroform during the delivery of the cyst. The author formulates the following principles that underlie the use of the method: (1) To produce skin anesthesia, intradermal and not hypodermal infiltration is necessary. (2) Intraneural or paraneural infiltration in the trunk of a nerve is equivalent to complete section of the nerve as far as sensory impulses are concerned. (3) Elastic constriction prolongs the anesthesia. (4) Proper infiltration permits the use of very dilute and non-poisonous solutions. (5) All tissues and organs of the body, except skin and nerves, when uninflamed have little or no sensation. (6) Morphine should be given as a preliminary to lessen the psychic pain. (7) Local anesthesia can be supplemented when necessary by chloroform or ether for a brief period with less danger than if the latter were given continuously. The author has had no bad effects from cocaine; one grain is considered within safe limits, and up to four grains may be used when it can soon be released by incisions or a constrictor can be applied.

Splenectomy for Malarial Splenomegalia.—Total extirpation of the spleen still ranks among the rare operations, yet it has been amply proven that not only is splenectomy compatible with life, but that certain conditions urgently demand the operation. F. Carini and R. Gomez (Gazz. degli osped., May 11, 1902) report a successful splenectomy in a case of splenamegalia with ptosis of the organ and torsion of the pedicle, basing upon its favorable outcome and upon the experience of other operators arguments in favor of the measure. It is concluded that the operation is a comparatively safe one, causes but slight and transitory disturbances in the blood crasis, and does not materially diminish the defensive power of the organism. It is especially indicated in traumatism, malaria, and movable spleen, especially if complicated with torsion of the pedicle. Instances have been reported of its application to other grave affections such as malignant tumor. Aside from its advantages in relieving the patient of the discomfort of an abdominal tumor, splenectomy is considered an important prophylactic measure in view of the fact that hepatic cirrhosis depending upon malarial splenamegalia has not infrequently developed.

Action of Rontgen Rays upon Neoplasms.—Sufficient work has now been done to demonstrate the value of X-rays, especially upon integumental growths. C. Beck (N. Y. Med. Jour., May 24, 1902) says that the most characteristic difference between ordinary burns and the changes produced by the Röntgen light is the fact that the latter do not manifest themselves before the lapse of a period of incubation, as a rule after about two weeks. Examination of the changes shows a disturbance in the walls of the blood-vessels just as in ordinary burns. The peculiar chemical influence of the Röntgen light in the tissues is so exerted that the nutrition of the cells is impaired. A hair extracted after prolonged irradiation is found to have lost its structure. It ends in a point instead of showing a root. There is a thickening of the tunica intima of the small vessels, a process which tends to narrow their lumen. Fibrous tissue in reticular arrangement is deposited. The tunica muscularis and adventitia undergo the same change. The tissue change taking place in neoplasms is also of the nature of a chronic inflammation. The nutrition of their superficial strata is disturbed, the cells starve and if overirradiation be continued necrosis may result.

Treatment of Cholelithiasis.—The necessity for surgical interference for the radical care of biliary calculi has been appreciated only during very recent years and the dangers attendant upon palliative measures are by no means generally appreciated, yet H. Lilienthal (Med. Rec., May 31, 1902) compares this condition with that of appendicitis, in regard to both the uncertainty of the outcome and the necessity for careful watchfulness. Among the consequences of the presence of gall-stones he mentions carcinomatous degeneration of the gall-bladder or passages, ulceration and infection of the gall-bladder, empyema, gangrene and perforation of that viscus; cholangitis, extending into the finer ramifications and usually proving fatal, and cirrhosis of the liver. If a person has had one attack of biliary colic it is necessary to be on the lookout for one of these complications and should they arise operation is usually indicated. At the present time there is a tendency toward doing a radical operation, cholecystectomy, wherever it is possible, for cholestotomy may result in only temporary relief and the dangers of a second attack are manifold. Just as in appendicitis the object is to remove the entire organ and prevent recurrence, so in biliary colic the tendency is now toward completely extirpating the organ. Perfection of operation is lessening the amount of shock.

Endovesical Operations.—One of the present-day "Grenzgebiete" between medicine and surgery which seems to be rapidly passing into the domain of the operator is the field of bladder troubles. The introduction of local anesthesia and of the endovesical method of procedure has undoubtedly gone a long way toward putting the surgeon in control of cases which had previously belonged distinctly to the internist. A paper which is both modern and conservative in tone has been contributed by Prof. Schmidt of Chicago (Medicine, June, 1902) on the technic and possibilities of endovesical surgery. The question of instruments is of course all-important, and a great deal of labor has been expended in the production of an efficient operative cystoscope. The older type of instruments, as those of Nitze and Caspar, suffer from the drawback that the operative beak covers to a great extent the field of operation. Their armamentarium, however, is very powerful, and allows of very energetic and extensive procedures. The Kolischer cystoscope has the advantage of affording a direct and free view of the field; it is armed with the galvanocaustic snare and with curettes, scissors, and forceps. Its usefulness is somewhat limited by the small size of the mechanical appliances. Another important question is the one of anesthetics, not only on general principles, but because a large number of individuals with bladder affections also have diseases of the kidneys. It is, therefore, fortunate that the majority of endovesical operations can be done under local anesthesia. Cocaine should never be used in the bladder; instead, the author recommends highly-concentrated antipyrine solutions, which act efficiently though slowly. The urethra must be cocainized. Sensitiveness of the prostatic urethra must be overcome by a rectal suppository of morphine. The conditions for the relief of which endovesical operations are indicated are as follows: Granulating cystitis, ulcer, fissure, certain forms of tumor, varicosities, and some foreign bodies. Granulating cystitis is a not uncommon condition, which, according to the author, fails to respond to ordinary treatment; it yields rapidly, however, to endovesical curettement. The operation is followed by an injection of iodoform emulsion, which is left in the bladder. Fissures are cured by a single cauterization. Ulcers, which are very frequent and extremely rebellious to other forms of treatment, are cured by a single thorough curettement. The treatment of tumors forms a very important chapter in endovesical surgery. The proper limitations of this method in cases of tumors are stated as follows by the author: The tumor should show no signs of malignancy; it should not be so large as to interfere with the ease of manipulating the cystoscope; it ought to be pedunculated, although tumors with a large base may be removed in sections. Varicosities of the superficial veins, which occasionally give rise to severe hemorrhage, are easily removed with the galvanocautery. Finally, the operative cystoscope is of enormous importance in the after-treatment of litholapaxy. By means of its forceps the small splinters may be crushed and removed and the irritant eliminated.

PEDIATRICS.

The Feeding of Children during Their Second Year.—This is a period of adaptation to the digestion of the elements of adult food, writes T. S. Southworth (Archives of Pediatrics, May, 1902) and the time of tooth-development. If the child has not been weaned at twelve months, it should be allowed some breast-milk through the hot weather, though much of its food should be given by bottle. One of the first additions should be well-cooked and strained gruel or jelly of oatmeal, wheat or barley. Constipation may be relieved by oatmeal, while diarrhea, eczema or intestinal indigestion would contraindicate it. Soon a cereal with milk or cream may be given regularly each morning, constituting breakfast, salt being preferable to sugar. Rice may be given later in the day. Cow's milk should, in any case, be the basis of feeding for the entire second year. The bottles are often discarded as soon as possible, because of dangers from lack of cleanliness, but boiling water and care will overcome this objection to the use of the bottle, and a child will often take more nourishment from a bottle than from a cup. The milk is also taken more slowly and regularly from a nipple. The 12-ounce bottle should be substituted for the 8-ounce for children over ten months of age. A general schedule for diet is as follows:

Half past seven a.m., breakfast, including milk; 11 a.m., bottle of milk with crust or zwieback; 2 p.m., dinner, with rather less milk, as the other food is increased; 6 p.m., supper, including bottle of milk; 10 p.m., bottle of milk. Soft-boiled eggs may be given at intervals, or bread in the form of crust or zwieback, bread and egg, or bread and milk, or orange-juice, two or three stewed prunes with the skins removed, or the soft part of baked apple. About the middle of the year it is safe to allow fresh green peas, asparagus tips, tender string beans or spinach mashed and passed through a sieve, and later stewed celery, tender boiled onions and baked mealy potatoes. Beef-juice may be given even during the first year, and in the second year may alternate with chicken- or mutton-broth. Toward the middle of the year, scraped rare pulp of steak, roast beef, mutton or mutton chop, and finely-minced white meat of poultry may be added to the dietary, except for children of nervous, rheumatic or gouty parents, or with strongly acid urine or eczema. Candy and sweets cannot be defended on the grounds that sugar is necessary to a child. The list, then, is milk, eggs, cereals, bread, meat-juice, scraped meat, and certain vegetables and fruits.

Salaam Spasm.—After reporting a case of rhythmical nodding movements of the head in an infant, fifteen months of age, L. G. Simon (Revue Mens. des Maladies de l'Enfance, May, 1902) sums up the characteristic traits of this neurosis. It arises in infancy, always before the twentieth month, without apparent cause. It consists of anteroposterior oscillations of the head, occasionally with a lateral inclination and sometimes with accompanying contractions of the muscles of the trunk and shoulder. The movements are rapid, regular, of small amplitude, and cease completely during sleep. There is a rapid nystagmus, most frequently bilateral. It is to be distinguished from other forms of nutatory spasms, namely, those pertaining to senility, the incoherent nodding of chorea, the rhythmical nodding of hysteria, or of rhythmical chorea. It is not comparable to the movements of the head seen in cases of certain cerebral tumors, or as the sequela of acute non-tuberculous cerebrospinal meningitis. Two varieties of spasmus nutans are to be distinguished, from the point of view of their evolution, prognostic value, and perhaps from the point of view of their nature. In the first group are found infants who later, after the disappearance of the nodding spasms, become true epileptics. In these cases the nodding movements may be considered one of the numerous forms of petit mal which are comparable to epileptic vertigo. To this variety belong the spasms that come on in isolated attacks, two to ten or more per diem, particularly when they are accompanied by loss of consciousness, paleness, staring of the eyes and dilatation of the pupils. In the antecedents of the patients of this group there are usually found cases of alcoholism or of epilepsy. They are greatly improved by the bromides. The cases that belong to the other class get better in from two to four months or more; their cure is complete and they never become epileptics. The attacks are not isolated, there are no mental disturbances, and there is no hereditary taint. Rachitis, acute disease or the absence of light may give rise to this form of spasmus nutans.

Free Hydrochloric Acid in the Infant Stomach.—It is seldom fully realized that the reason why some children do very well upon the same diet that disagrees with others depends largely upon the amount of hydrochloric acid which is secreted. A. S. BLEYER (St. Louis Cour. of Med., Apr., 1902) shows that not only is there considerable variation in the amount of acid found in the stomach, but that much also depends upon the kind of food ingested. A deficiency in the secretion of the acid results in intestinal disturbance, highly suggestive of bacterial invasion, with fermentation and the establishment of a condition so very common among artificially-fed infants. It has been shown that in breast-fed infants the appearance of free hydrochloric acid is precocious, which is a very suggestive explanation for the immunity against intestinal derangements enjoyed by such infants. Cases are reported giving a very interesting explanation for certain instances of persistent vomiting. Various kinds of food were tried without benefit till the proteids were increased, after which vomiting was at once allayed. Examination of the stomach-contents showed high percentages of hydrochloric acid which required neutralization. In every case of infectious enteritis, it is advisable to examine carefully the condition of the gastric juice and when such is lacking in hydrochloric acid the caseins should be carefully diminished until sufficient acid is permitted to exist free in the stomach to stay the invasion; and, on the other hand, when hyperacidity is present and vomiting is persistent and excessive, the caseins should be increased till the acid has expended its force upon them and has been given a chance to do its physiological duty.

Nitrate of Silver and Thrush.—If lavages with alkaline fluids and applications of borate of soda correct thrush in the majority of cases, it is nevertheless a fact that often an obstinate case is found which resists this simple treatment. G. E. LA VLADIMIROV (La Sem. Méd., 1902, No. 17) has found that when such severe cases are encountered, they will usually cease after local applications of a solution of silver nitrate, 2 per cent. in water. He begins by detaching with a dry swab of cotton or linen, all possible plaques of thrush. If these be very adherent their tearing off may cause a little bleeding, sometimes considerable, which can easily be controlled by making pressure with a small tampon of cotton. It is necessary to separate all the plaques. After this the application of the silver is made. The child is laid upon its side and into its mouth is passed a pair of forceps bearing a plug of cotton soaked in the silver solution. After a moment another pledget of cotton filled with chloride of sodium is used in order to neutralize the excess of the silver. In order to avoid movements of suction which the child may make when the forceps are introduced, the jaws are separated by passing the finger into the mouth on the opposite side and resting it between them. Under the action of the silver nitrate the mucous membrane becomes white in color, which permits one to see whether the forceps have been applied to all parts of the mouth. The treatment should be repeated once a day, whereas the topical applications of borate of soda and other drugs of the same class must necessarily be used several times through the day—which is an inconvenience because it is often difficult to subject the child to mechanical irritation at such frequent intervals. Such disturbances may have a tendency to favor the morbid process (Epstein). One to three washings with the silver nitrate have been sufficient, in the experience of the author, to bring about a complete cure of thrush even in cases in which all other remedies have totally failed.

Results of the Crede Treatment of the Newborn.—A recent writer declared that in Munich 34 infants out of 962 suffered from blenorrhea, despite the treatment of the eyes at birth, according to the method of Crédé. E. RUNGE (Berlin klin. Woch., May 19, 1902) compares these figures with statistics which he collected at Göttingen during the past five years. One thousand newborn children were treated. Not one had an early infection of the eyes, and in only a single case was there a later infection, occurring at the beginning of the second week. Even in this case the infection ran a rapid and mild course; the inflammatory process disappeared in forty-eight hours. Including figures collected at Göttingen by Schallehn during a previous period, Runge is able to report 1,917 cases without a single early infection. On two separate occasions groups of pregnant women were examined at the Göttingen clinic for gonorrhea. Of the first group, 25 per cent. were found to have infections; of the second group 20 per cent. were gonorrheic; hence the opportunities for infection of the newborn were frequent enough. Runge regards the effectiveness of the Crédé procedure as unquestionable. A 2-per-cent. silver-nitrate solution does occasionally produce a mild conjunctivitis. A 1-per-cent. solution has not this disadvantage and is just as successful a disinfectant as the stronger solution.

Alcoholism in Children.—The effect of alcohol on the healthy child's organs is a varying one, depending on the concentration, quantity and time of administration. Acute alcoholism is occasionally seen in children, and according to J. GROSS (Archiv f. Kinderheilkunde, May, 1902) it presents symptoms similar to those seen in adults. Two patients seen by the author were brought to the hospital unconscious, with tonic and clonic convulsions, which were controlled by enemata of chloral. The diagnosis was made by the odor of the breath. The disappearance of the convulsions was followed by deep sleep for several hours. One of the patients, a child three years old, on awakening, asked the nurse for some brandy. Acute alcoholism in children is thus seen in a more intense form than in adults, presenting convulsions which are not seen in the latter, and thus showing a greater toxic effect on the central nervous system. The use of small doses of alcohol in children is stimulating to the central nervous system, but this stimulation is only apparent, for paralysis invariably follows it. The temperature of the body is lowered only by large doses of alcohol, which are highly injurious to the organs of the body. Children are given small doses of alcohol for a long time by parents who from a false point of view think that alcohol strengthens the body. This is sometimes given even during the nursing period. The quantities given vary from two to five grams or more of cognac or tokay, concentrated or dilute. From the stimulation of the gastric mucosa, a dyspepsia is produced, which may go on to the production of a severe gastritis. These conditions may also result from the use of beer and light wines. Among the higher and middle classes, parents give their children wine, beer and cognac, while among the poorer classes, brandy and whiskey are usually given. Cases of alcoholic habituation are seen in infancy when physicians order or sanction the use of alcohol in sickness without regard to the presence or absence of fever, or the weakness or strength of the heart. Cirrhosis of the liver is frequently observed as the result of the continuous use of alcohol. The author observed four of these cases in which malaria and lues had been excluded. The early use of large quantities of alcohol has a profound effect upon the nervous mechanism, cases of epilepsy, chorea and severe neurasthenia having been traced directly to the use of this drug. Heredity plays a large rôle in the production of alcoholism in children. Cases are described in the literature of children who, removed from their alcoholic parents to favorable surroundings, in the course of time betrayed unmistakable propensities for alcohol. According to Demme, among the offspring of alcoholics the mortality is extraordinary; those who servive constitute a sad class of idiots, epileptics and otherwise neurotic individuals; only a very small proportion become useful members of society. In spite of the baneful results of the vicious use of alcohol in childhood, this drug has distinct therapeutic uses. In the cardiac asthenia accompanying diphtheria, measles, scarlet fever and typhoid, in the collapse associated with intestinal diseases and with severe hemorrhages, alcohol is of peculiar value. Moreover, it has been shown by Binz that in the failure or in the total cessation of nutrition the administration of alcohol tends to prevent the destruction of the tissues. Given greatly diluted in water, it is rapidly broken up and totally consumed in the tissues with the production of carbon dioxide and water. Hence in conditions of permanent disturbances of nutrition, in cases of rickets, scrofula, tuberculosis—in general, in all chronic diseases with lowering of the vital resistance—alcohol may serve, not as a nutrient, but as a powerful preserver of the tissues.

PHYSIOLOGY.

Relation between Chemistry and the Physiological Action of Morphine.—The large size of the morphine molecule leads one to assume that not all the atoms of which it is composed take part in its physiological action, and it has been the attempt of E. VAHLEN (Arch. f. exp. Path. u. Pharmak., Vol. 47, No. 5 and 6) to isolate that physiologically interesting nucleus upon which most of the efficacy depends. The difficulties of research in so comparatively new a branch of pharmacology are obvious, since it is only rarely that by the breaking up of a molecule components are obtained which resemble the mother-substance in effect. It is more often the case that one common ingredient is found in a number of drugs of the same action and close chemical relation, as in the case of the purin obtained from caffeine, theobromine and allied alkaloids, upon which most of their action depends. The author started his experiments by assuming that the phenanthrene nucleus contained in morphine was the chief carrier of its function and, since the addition of nitrogen, which is an important element in most alkaloids, seemed desirable, discovered a synthetic combination of the two, named by him morphigenin. Chemically it is oxyamidophenanthrene and it seems, indeed, as if it closely resembles morphine physiologically—so much so that a readily soluble derivative has been brought on the market under the name of epiosin. Other products also narcotic in effect, possessing the same nucleus, could be obtained. Thus, a number were formed by the action of zinc chloride on morphigenin chloride and several by combining sulpho-acids with morphigenin, but no stable compounds resulted from all these experiments, which fact diminishes their importance. Epiosin itself was manufactured by heating 1 gram of morphigenin chloride with 3 grams of sodium acetate, 12 cubic centimeters of absolute alcohol and 1.5 cubic centimeters of an aqueous methylamin solution, 33 per cent. in strength, for two hours in the water bath, with subsequent evaporation and extraction with chloroform. Chemically it is a methyldiphenylenimidazol; it melts at 195° C., and is readily soluble in alcohol and chloroform; its chlorides are soluble in water. Injected into frogs the latter paralyzed the functions of the cerebrum and later those of the spinal cord; when dogs were employed, there were a blunting of the sense of pain not leading to sleep, a sluggish corneal reflex, involuntary defecation, urination, and salivation, a slight rise of blood-pressure, with slowed and shallow breathing. Unfortunately, the pupillary changes were not recorded, but there was no marked miosis. With larger doses, convulsive twitchings were observed. Experiments on man showed a ready relief of pain, with sleep, and no after-effects followed. The dose of epiosin chloride is 0.1 to 0.13 gram and 0.12 gram, corresponding to 0.03 gram of dionin.

Action of Digitalin by Exocardial Application.—Stimulated by the different results which certain authors obtained by applying helleborein to the exterior of the heart than when it is allowed to effect the interior of that organ by its presence in the circulating fluid, A. BENEDICENTI (Arch. f. exp. Path. u. Pharmak., Vol. 47, No. 5 and 6) has repeated the experiments with the drugs of the digitalis group. When digitalin is applied to the normal heart of a frog, for a time there is no change, except a slight increase in the pulse-rate. Soon, however, this sinks very markedly and, while the pulse-volume reaches its maximum, the slowing increases until complete stoppage occurs for a short period, soon followed by a series of pulsations, then again by stoppage; then, instead of groups, single contractions occur, interrupted by long periods of inactivity which gradually increase up to cessation of all heart-action in diastole. The same phenomena were observed when strophanthin, scillain, convallaramin and other members of the digitalis group were employed instead of digitalin. In case the poisons were applied both to the inner and the outer side of the heart there was also noticed a tendency to a systolic position of the heart. The combined application of digitalin and atropine gave the same pulse-curve as when digitalin alone was used. Further experiments were made to ascertain the effect of an increased temperature on the inner and outer surface of the heart. When the outer surface is rendered warmer, the pulse-volume first diminishes, then increases with an increase in the pulse frequency. Finally the diastoles increase and the systoles become more and more weak and incomplete. Conversely, if the rise of temperature be permitted to act upon the heart cavity, there is simply an exaggerated action of the heart, which beats regularly for hours, and only gradually do the systoles become incomplete till the heart stops in a half-systolic position. All these experiments prove a different arrangement of the inner and outer muscular fibers or a different innervation of the two surfaces.

Decomposition of Iodides in the Body.—To explain the splitting-up of iodide of potassium in the body, A. STEPANOW (Arch. f. exp. Path. u. Pharmak., Vol. 47, No. 1 and 2) analyzed the different organs for nitrites with sulphanilic acid, a-naphthylamin and acetic acid. They were found present in the white substance of the brain, lungs, bronchi, parotid, duodenum, medulla of kidney, suprarenals, testicles, and in the parotids, while they could not be detected in the gray brain-matter, liver, stomach, spleen, cortex of kidneys, muscles, or in the blood. The author comes to the conclusion that the nitrites, in conjunction with the carbon dioxide of the tissues, play an important part in decomposing the iodides, but that other unknown factors are also at work.

Color-Reaction of Santonin in Urine.—In the course of a urinalysis in the case of a child treated with santonin, E. CROUZEL (Jour. d. méd. d. Bordeaux, May 18, 1902) noted that the red color produced by alkalies in the presence of urine containing santonin was most intense when concentrated calcium hydrate was the reagent employed. This reaction was found to be of extreme delicacy; and the administration of santonin, .10 (gr. ij), to an adult sufficed to produce the characteristic coloration with calcium hydrate in all the urine passed during sixty hours. This coloration of the individual specimen lasted about half an hour, the normal color returning at the end of that time. Solutions of santonin in water or urine do not give this reaction with calcium hydrate. The color-reaction of santonin which has been modified in the body and eliminated through the urine is, in the author's opinion, of interest from the urological and toxicological point of view. It may also be found valuable in physiological experiments and in experimental medicine; for example, it might be used to determine the functional permeability of the kidney. Thus might it be variously applied to the diagnosis of diseases of the kidney.

Lichen Planus as a Vesicular Affection.—That this disease may be accompanied by a bullous or vesicular eruption is the observation of C. W. ALLEN (Jour. Cut. and G.-U. Dis., June, 1902) and he believes that it is not due to the administration of arsenic, as usually supposed, but that it is an essential part of the lichen planus lesion. The vesicle is probably due to some condition of a vitiated coil gland secretion, for the greater proportion of cases and recurrences are noted during warm weather when the sweat-glands are active. The best form of treatment he found to be curettage of the lesions as soon as they appeared.

GENITO-URINARY AND SKIN DISEASES.

Mercury in the Cure of Syphilis.—The widespread extension of syphilis, acquired and hereditary, is a well-recognized fact among medical men, and the disease is regarded as the active or contributory cause of a large number of other conditions. It is therefore of primary and essential importance that when it manifests itself it should be suitably treated. LEREDDE (La sem. méd., 1902, No. 17) lays down the following principles: (1) It is necessary to treat severe symptoms of syphilis by injections of mercury alone. (2) It is necessary to increase the dose of mercury so given until the symptoms are influenced by it. The arguments by which he concludes that the injection of mercury is better than any other means of administration are, briefly, that by it the quantity given is absolutely known, a fact not determined in administering it by inunction or by the stomach, because no one can tell how much will be absorbed either by the skin or by the digestive apparatus. The therapeutic effect of injections of mercury depends somewhat upon the dose of the drug given and also upon the form. It must be recognized that the disease in one person will not be influenced by the same quantity as would cure another. Similarly, in a given patient the dose must be slowly raised until the desired effect is reached. As a preventive of the bad results of mercury he recommends that early in the treatment of syphilis every patient should be sent to a competent dentist, who will cleanse and fill his teeth and instruct him in the care of his mouth. In the opinion of Leredde the starting-point of all mercurial inflammations of the mouth is bad teeth and bad oral hygiene. He states this very emphatically and believes that a dose which causes trouble when the mouth is dirty and the teeth are decayed will cease to inconvenience when these conditions are removed. The present method of giving mercury by injection is usually a single dose of large size, given once or twice a week, but this authority states that in order to gain complete and rapid control over the serious signs of this dreadful disease it is better to give a smaller dose every day for a short time, so balanced as to stop short of causing chronic mercurial poisoning. As examples of what he means he states that if the stronger salts be employed (the cyanide or sublimate) doses of 0.03 or 0.04 centigrams should be given; of the weaker salts (benzoate or biniodide) practically twice the above quantities may be employed. This observer believes that the influence of mercury upon syphilis is underestimated by the profession at large, the quantity given, at least in grave cases, is too small, and therefore the results obtained from it are not so satisfactory as they should be.

Soft Chancre and Refrigeration.—A recent addition to the therapeutics of certain skin lesions has been the application of refrigerating mixtures, notably to such diseases as lupus and its correlatives. Recently A. BRANDWEINER (La sem. méd., Apr. 30, 1902) has extended this therapy to soft chancres, employing specifically either a pure ethyl chloride, which boils at 2° C., or a mixture of it with 15 per cent. of methyl chloride, which will boil at 11° C., and therefore produces a more rapid, active and penetrating refrigeration. The technic which he follows is this: The chancre is exposed, freed of all crusts and secretions by a wash of bichloride of mercury or of other antiseptic, carefully stretched wide open and then sprayed with the chloride of ethyl or with the mixture, exactly as if local anesthesia were to be produced. In order to hasten the evaporation and refrigeration, a hot thermo-cautery may be passed over it at a distance of an inch or two. By this hastened evaporation a thick, somewhat persistent frost appears which is really the product of the congealed drug. The entire procedure lasts only from three to five minutes, unless the diseased area be very extensive or rebellious to treatment. The procedure must be repeated in ordinary cases once or twice a day, and in the more difficult and fractious ulcers from two to four times in twenty-four hours. It is the exception to see any bad after-effects, such as gangrene of the skin. After each refrigeration it is advisable to powder the sore with some such medicine as iodoform and to employ at once an ordinary dry dressing. Usually, after two to four applications, occasionally after one only, it is possible to see the floor of the ulcer covered by fine healthy granulations. In forty cases treated in this manner Brandweiner notes seven failures. This simple process must not be confounded with a similar one which Unna of Hamburg suggested, which comprises excision of the ulcer after refrigeration by chloride of ethyl. Anatomical difficulties often prevent the use of this method. Simple refrigeration, however, accompanied by dressing, meets an obstacle only when the ulcer is on the inner surface of a long phimotic prepuce. A free dorsal incision, however, will permit its use even if such a condition is present.

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THE MEDICAL EXPERT AND THE JUDGE.

THE California Supreme Court does not agree with the ordinary denunciations of medical testimony by omniscient judges with patent medicine and "Christian Science" bias. Judges are too prone to ignore the principle that expert evidence should go in under the common law principle for what it is worth, and too often it is because of this tendency that quackery thrives like a upas tree under the fostering breath of judicial infallibility.

The California Supreme Court sacrifices these infallibilities when it says (*in re* Blake's estate, *Journal Amer. Med. Assoc.*, June 21, 1902) that the law was correctly stated in the following instruction given to the jury: "The law recognizes and receives the testimony of duly qualified medical expert witnesses. Such an expert must of course be qualified according to law. A mere opportunity afforded for observation will not constitute a person an expert. He must have been educated in the business about which he testifies or it must be first shown that he has acquired actual skill and scientific views concerning the subject-matter involved. When such experts are, however, duly qualified, the law recognizes and receives their testimony, and in arriving at a conclusion concerning the issue involved in this case (a contest of will case in which the mental capacity of the testator was challenged) you may take into consideration their testimony and award to it such value as in your judgment it deserves." But, unfortunately, the judge went further and showed the jury that he had a very poor opinion of testimony of this character. The jury was told that it was unsatisfactory and the reason why it was so. It was further told that it was unreliable and the reason why it was so. Not only this, and to make assurance doubly sure, it was told that opinions of experts were not entitled to so much weight as facts and that such opinions based upon the same supposed conditions were often diametrically opposed to each other.

The Supreme Court stated that while the opinion of the judge might have reason to support it, it was not proper for him to give his opinion to the jury. Neither was it proper for him to give the jury in his instructions an argument as to the reasons why such evidence in his opinion was unreliable and unsatisfactory. The code makes the testimony of physicians admissible in such a case. The jury may determine whether or not the opinion is reliable. The opposite party is given full opportunity to cross-examine and show the reasons upon which the opinion is based. He is further given full opportunity to argue before the jury the credibility of such evidence and the jury will thus probably arrive at the truth. There is no law that declares that the testimony of experts is unsatisfactory and unreliable. If so, the law should not allow it to be given in evidence.

We fear that the average judge fails to remember that under the system which must obtain in courts of justice in English-speaking countries no expert can tell the "truth, the whole truth and nothing but the truth," since objective examination without a clinical history does not and cannot reveal the truth, the whole truth and nothing but the truth. No absolute medical diagnosis is possible without a subjective factor. In law this subjective factor unless sworn to must be received, under the rulings of many courts, as hearsay evidence. In every examination for diagnosis and treatment subjective factors have to be received. The difficulty has been solved by Supreme Courts drawing a difference between examination by the family physician and examination by the expert. This is an unconstitutional intrusion on the province of the jury. In most instances judges denounce experts because expert knowledge does not agree with the prehistoric folklore of the judge acquired ere he obtained legal training and retained despite it. One judge denounced experts because they asserted that a man might be insane and still go through a marriage ceremony with seeming intelligence. In denouncing such an expert the judge showed a remarkable ignorance of the text-books of his profession and of the most recent decisions of the upper courts of his state.

The position of the expert in the English common law, like the position of the judge, must be that of an adviser not of a dictator, as under the Roman law which obtains on the continent of Europe. Under the Roman law the State is supreme; under the common law the rights of the individual freeman are supreme. It was this feature of the judicial common law that made judicial torture (the disgrace of the Roman law) always illegal in England. These principles of individual freedom will always obtain in English-speaking countries and no reform of the alleged abuses of expert testimony is possible which fails to take them into account. Most of the abuses actually result from the attempt to make political, social, and corporation factors dictators in forensic medicine.

THE TREATMENT OF AMEBIC DYSENTERY.

Amebic dysentery, of which the first case was described in this country so recently as 1890, has latterly assumed a rôle of considerable importance among the various intestinal diseases. At Johns Hopkins alone about 300 cases have been treated within the last twelve years. Not only have epidemics of the condition occurred among the native-born children, but there has recently been an enormous importation of cases from the tropical acquisitions due to the Spanish War, notably from the Philippines.

The treatment of this condition is not everything that might be expected. Some cases seem to yield readily to tonic measures, combined with almost any of the drugs employed in other forms of colitis, *e. g.*, calomel, or ipecac. There are other cases which absolutely resist these simple measures. For them, the most successful management has seemed to be the use of antiseptic solutions locally applied. Delafield has recommended weak solutions of corrosive sublimate in irrigation. At the University of Johns Hopkins, which has set the standard in the diagnosis, the general study and the treatment of the condition, solutions of quinine are believed to give, on the whole, the best results of any treatment as yet recommended. The drug is one which early found favor as an antiseptic in the days of the Listerian era in surgery, and which even recently has found ardent advocates as an application to wounds. More probably, however, its effect in amebic dysentery is in some degree specific, serving, as Lauder Brunton long since showed, to inhibit the mobility of protoplasm in the protozoon forms.

Notwithstanding their general utility, however, rectal enemata of quinine are at times contraindicated or rendered impossible by the severe pain which they produce, and by the not inconsiderable danger of perforation in the cases with pronounced ulceration of the lower bowel. Under the latter circumstances, another drug has recently been found to act with brilliant success by Myer of the Washington University. This drug is santonin, long used as a parasiticide. This is given in doses of three grains, combined with sodium bicarbonate, three or four times daily. The drug has shown itself capable of relieving very malignant forms of the disease that had previously resisted all the regular methods of treatment. With this addition to our armamentarium, we are now in a fairly satisfactory position with regard to the treatment of amebic dysentery in all its varieties.

ANTHROPOLOGY AND THEOLOGY.

Certain of the faculty of one of our well-known divinity schools recently applied to the officers of the university of which it is a part for the inauguration of courses in anthropology and criminology. This would seem to be an important and an encouraging sign of advance, and we welcome it as such.

To the faculty of this theological school, at least, it has evidently become apparent that their students are at present learning too little about men, about the individuals, men, women, and children with whom even the clergyman's duties are really concerned, however often his imagination, in some cases, may be in the skies.

As things are now, it is the medical man and not the theologian who truly knows mankind and how truly akin to "dust" mankind is in the greater mass and substance of his living. The Gospel minister knows by his profession man's moral nature, but sometimes only in such a one-sided way that his knowledge leads him into falsely extravagant dogmatism and into cruel and unacceptable notions of divinity and of the highest good. But teach the clergy what the broad-viewed medical doctors know of the common human nature, and the former will thereby become in living fact as now in deceptive name and theory the "shepherds" of mankind.

The physician as anthropologist understands that an individual's nature, apparently dual in its two aspects of body and mind, is really one. He knows well that a man's instincts, sometimes leading to "sin," are as really a part of that individual's organism as is his liver or his blood. He never for a moment loses sight of the important fact that two great instincts in particular, those of self-preservation and of race-continuance, are grained in every cell and tissue, every organ of the body. He expects, then, as part of life in its present stage of evolution that all those many crimes will be committed which have their origin in these two instincts, organic habits strong as life itself. And more, the anthropologist knows that the passions, as habitual emotions, have their locus in every portion of the bodily frame, ingrained, as important elements of its manifold function.

Thus many "sins" mean to the physician something quite different from what the divinity student is led to believe they are. The excuse which the sinner often really has is ignored by the clergyman oftentimes or at least is unappreciated by him. Instruction in the elements of anthropology would present these mitigating factors of wrongdoing in all their force and variety, and thus inevitably would liberalize the deadening dogmatism of some theological creeds.

But there is something else this instruction would do which would be of yet greater value to the clergy and to their work—it would put them into greater sympathy with actual men and women. This is the simple secret of the fact that to-day perhaps the Salvation Army is doing proportionately more good than all the churches, for the preachers in this work are of the people and know their nature, comprehend their emotions and their instincts, part of man, and admit their often valid excuses.

Let the students of divinity, then, learn as thoroughly as they can be taught it that the multiform and often overwhelmingly common crimes of a sexual nature, for example, are sometimes not sins to be flatly and dogmatically denounced as deliberate acts of evil willing, but, on the other hand, that they arise in instincts above which men must be helped to rise and not damned by men because of them. Let the students of divinity learn with all the possible speed of certain science that the passions of rage and jealousy, and all the other emotions which give rise to many crimes of violence against the person, are matters of the viscera and the muscles and the brain, and that these in a low stage of moral courage, or even of intellect, may entirely dominate even a powerful will. Clergymen should know, too, as others should, that the paranoiac and the epileptic may commit deeds which few sane men could compass, and that advancing medical science marks these off from the normal others ever more clearly. In short, let theology and medicine get closer together, that the clergymen may learn things as to man's truer nature which the broadly informed or widely experienced physician learns. Physiology and physiological psychology and anthropology have much to teach the preacher, young or old, who would place his guiding influence over men on the only possible substantial basis—that of impartial acquaintance with the human beings of this wondrously complex world as they really are, "compounded of both flame and clay" which forever interact.

ECHOES AND NEWS.

NEW YORK.

Physicians' License Examinations.—Examinations for license to practise medicine in this State will be held in New York, Albany, Syracuse, and Buffalo on September 23 to 26, 1902; January 27 to 30, 1903; May 19 to 22, 1903, and June 23 to 26, 1903.

New York State Medical Association.—The annual meeting of the New York State Medical Association will be held at the Academy of Medicine, in this city, October 20th to the 23d, inclusive. The Committee has nearly completed the literary program. Besides contributions from members, papers from such recognized authorities as Drs. Mayo, Oschner, Stengel, Thayer, and others, will be read. The social features of the meeting have been carefully considered. The Committee has decided that Tuesday evening, heretofore taken up by a literary program, shall be free to the members and guests to seek their own recreation. The annual dinner and reception will be held on Wednesday evening, October 22d. The innovation last year of admitting ladies to this function met with such universal approbation that the Committee feels justified in urging their attendance this year, and arrangements will be made for their presence and comfort. Luncheons will be served at the Academy of Medicine as formerly.

Bequests to Charity.—Mrs. Mary J. Walker, another of New York's unknown millionaires, died last week, leaving $500,000 to various charities. The following medical bequests are made: St. Luke's Hospital, $100,000; Society of St. Johnland, of St. Johnland, L. I., $50,000; Home for Incurables, Fordham, $25,000; Colored Home and Hospital of the City of New York, $25,000; New York Institution for the Blind, $25,000; New York Society for the Relief of the Ruptured and Crippled, $15,000.

Cottage Reformatory Plan.—Plans for a model village, overlooking the Hudson and promising to be one of the most unique communities in America, were made on Tuesday evening at a meeting of the directors of the New York Juvenile Asylum. A tract of 278 acres of farm land near Dobbs Ferry has been purchased for the site of the village and a novel architectural competition instituted to secure a complete working scheme for it. The plan is for a village on a farm land plateau on the east bank of the Hudson, and includes a schoolhouse, church, gymnasium, swimming pool, conservatory, power plant, electric light plant, local water and sewer apparatus, an office building, athletic field and cottages, one for each group of twenty boys and one for each group of fifteen girls. The girls' group is to be separated from the boys', and a general hospital and two industrial buildings provided. This new step means an entire change in the policy of the administration on the part of one of New York's oldest and largest charities. It is to substitute for a large institution small cottages with as close an approach as possible to natural environment homes with individual dining rooms and bedrooms, kitchens and sewing rooms in every little household. Charles Dewey Hilles who for fourteen years was at the head of the first cottage system reformatory at Lancaster, Ohio, has in hand the task of establishing the Dobbs Ferry village on even more advanced lines.

Appointment of Dr. Lapowski.—Mr. Boleslaw Lapowski has been appointed attending surgeon to the Department of Skin Diseases in the Good Samaritan Dispensary.

PHILADELPHIA.

Country Week Association.—This Association is now sending hundreds of children to the country weekly. In addition the board of many sick children is being paid at different seashore hospitals and occasionally thousands are given a day's outing on the Delaware.

Cannon Ball Farm Denounced.—Meetings of citizens are being held and petitions formulated against the ordinance for the purchase of the land known by this name as a site for the Municipal Hospital. The land is low and often partly submerged when there is high water. Protests of citizens from every locality previously considered have been made because they dread proximity to the hospital. In this instance the main objection is to the site itself as a hospital location. The Mayor is petitioned to veto the ordinance.

Woman Physician Demands Escort.—Dr. Mary Conard, a member of the resident staff of the West Philadelphia Hospital for Women, has resigned, it is said, because she was not furnished an escort when compelled to make calls late at night. The question of a night watchman to act as escort has been talked of but lack of funds has prevented an appointment. This may be brought about by Dr. Conard's resignation. The "Times" in an editorial comment, says: "It is plain that the world is not yet adjusted to the status of the new woman, and what deep despair is produced by the thought that it possibly never will be! The hands of women trained to medical skill have wrought untold good; but these women disdain the suggestion that their true field as physicians is a subordinate one, that they are best suited to be assistants to men in that capacity. Our sympathies are with Dr. Conard and we wish that the stern realities of life were not what they are. But the world is as it is and who is going to change it all at once?"

Optical College Refused Charter.—Judge Sulzberger has refused the application for charter of the Franklin Optical College. The master's report showed that the purpose of the incorporators was to establish an institution in which should be provided a course of instruction in the science relating to the structure of the eye and the laws of vision, and to qualify its students as skilled opticians. They would also be instructed so they could recognize any pathological condition in an eye and be able to refer the applicant to the proper course for treatment. The course of studies was to be completed in two months. The charter was refused because the diploma of the school would be the expression of the efficiency of the recipient in a limited course of instruction on a medical subject.

Municipal Hospital at Chester.—Private citizens of Chester are to defray the expenses of erecting a municipal hospital at that place. Smallpox is still prevalent there despite the warm weather, the report for the week ending July 5th showing more than forty cases and four deaths. Smallpox still persists throughout the State, a number of counties having more than twenty cases. The Secretary of the State Board of Health has advised the officers of the various municipalities in the State to prepare for more smallpox next winter.

Hospital Suit Taken to Supreme Court.—The County of Philadelphia has appealed to the Supreme Court in the suit brought against it by the trustees of the State Hospital for the Insane for Southeastern Pennsylvania. The verdict was for $67,500 for board, clothing, and treatment of indigent insane persons from Philadelphia in 1896. As a defence the city claims that excessive payments from 1885 to 1889 fully cover the indebtedness.

Atlantic City Hospital in Debt.—After July 15th no medical cases will be cared for at the Atlantic City Hospital. This is made necessary by the debt of $28,000 now in existence. The surgical and children's wards will still be maintained and the accident and emergency department kept up. There is a rumor that Mr. and Mrs. Charles M. Schwab will come to the aid of the institution.

Physician Instantly Killed.—Dr. John K. Reinoehl of Lebanon had his neck broken by being thrown from his buggy in a runaway July 10th. Dr. E. B. Marshall, who was with him, was severely trampled upon by the horse.

A Couple Charged with Being "Witch Doctors."—Mrs. William McBride and an accomplice, Edgar Zug, of Carlisle, have been held for a hearing on the charge of extorting money under false pretences. A family was made to believe that it was under a witch's spell and would be relieved of it for a consideration. Something like $500 has been given to them during the past year.

Pennsylvania Hospital for the Insane.—The annual report of this institution shows a population at the end of the year of 451, of whom 261 were women. During the year 93 men and 98 women were admitted. The receipts were $226,700 and the expenditures $227,400. During the year the building erected by Joseph E. Gillingham in memory of his wife, was opened. This furnishes to women patients liberal facilities for hydrotherapeutic treatment. A portion of the report by the chief physician, Dr. John B. Chapin, emphasizes a very important question. He says: "It has been an interesting experience of the year to note that fourteen patients suffering from neurasthenic conditions, with impaired physical health, threatened with mental disease, voluntarily sought admission to the hospital. If it were not for the unfounded and unwarranted prejudice existing toward hospitals for the insane, which even our laws indirectly foster, together with a disposition to conceal what is sometimes considered a blot on the family, there is no doubt that the number of voluntary admissions and recoveries would increase. There is no doubt that many suicides and other unfortunate experiences and calamities would be avoided. A request for voluntary admission indicates confidence in the hospital, as well as a need of help. It implies a probability that there will be a co-operation on the part of the patient in the course of treatment. The proceeding has also the sanction of our State law. If the movement of the present year should be emphasized by an increasing number of similar applications, there will come a question whether the hospital has any special duty to a class who are on the very threshold of insanity, and how it can be best discharged. Neurasthenic and nervous invalids are often required to leave comfortable homes and live elsewhere while undergoing medical treatment. They will resort to so-called sanatoriums and other places, some of which are well enough conducted, but they are not well placed even there. They hesitate to enter a hospital for the insane, admission to which is hedged about with legal requirements, implying often mental incapacity. Were it not for these, such patients could be best managed in many of the hospitals for our country as now conducted. Many cases such as we are now considering have been held in abeyance by the family physician, within our knowledge, awaiting a time when mental manifestations would be so pronounced that an unquestioned agreement would warrant any proceeding—a delay often working great detriment to the patient. Such a special department, if ever created, would be more favorably located elsewhere than in immediate proximity to a hospital, would prove to be an important and enlarged adjunct to its work and be favorably regarded by the medical profession. Every voluntary admission to a hospital for treatment is a plea for the establishment of such a department."

An Interesting Periodical.—Messrs. P. Blakiston's Son & Co. have just issued the first copy of their "Medical Book News." The object of this publication is to furnish information of use to medical men in selecting and purchasing books on medicine and the allied sciences. This branch of literature has become so voluminous that the time seems opportune for the issuing of a periodical devoted to it. The "Medical Book News" will include descriptions of important books, reviews from medical papers, news items, lists of the most recent American and English books of all publishers, lists of new books on special subjects and announcements of forthcoming books.

There are many books, and a large number of special monographs of the greatest scientific merit published by other than regular medical publishing houses but which are never brought before the average book-buyer, who is dependent almost wholly upon the catalogues and advertisements of individual publishers and who has, therefore, no opportunity to compare relative values. The lists of new books will include, so far as possible, all such books, as well as the more important treatises. Every effort will be made to furnish this information promptly, authoritatively, and in interesting and attractive form. It is proposed to issue it bi-monthly, and to send it without charge to all who appear interested.

Filtration Work in Pittsburg.—Pittsburg is having troublous times with its filtration scheme. A portion of the work of installing the sand system was completed when a court decision caused suspension of operations until the entire cost was estimated. This showed the need of $2,000,000 more than the original estimate. The question of issuing city bonds for that amount is to be submitted to the people, thus putting the responsibility upon the people themselves. If the issue of bonds be refused, it is said that the municipal authorities will install mechanical filtrations, which can be done with the money now available. All public work in Pittsburg is now mixed with factional politics which is under high pressure. The only outlook at present is a protracted delay of all filtration work.

CHICAGO.

Ruling Affects Medical Students.—The State Board of Health met recently at the Great Northern Hotel and decided that medical students must study seven months a year hereafter, instead of six months for four years; the forty months between matriculation and graduation must be spent in school in order to practise in this State. The required course of study is to be more exacting, and a high school diploma or the ability to pass an examination in high school studies will make it necessary for admission to the Freshman year. It is said that not more than 50 per cent. of the colleges in the country meet these requirements.

Examinations of Water.—Reports of experts who have made examinations of the water of the Mississippi, Illinois and Missouri Rivers, to ascertain the effect of the Drainage Canal were also made to the Board. These were all favorable to Chicago.

Appointment of Dr. Kuflewski.—Dr. Wm. A. Kuflewski has been elected a member of the Board of Education. He is also a member of the Library Board.

Mistakes in Treatment of Injured Persons.—The Supreme Court of Illinois says, in Chicago City Railway Company versus Cooney, a personal injury case brought by the latter named party, that the liability to mistakes in treatment is incident to the injury, and when such mistakes occur—the injured party using ordinary care in the selection of her medical attendants—the injury resulting from such mistakes is properly regarded as part of the direct damages resulting from the original injury.

Officers of the Eighth Infantry.—The following medical officers have been commissioned and assigned to the Eighth Infantry, Illinois National Guard: Major Allen A. Wesley, surgeon; Capt. Edward S. Miller and Lieutenant Eugene C. Coveington, assistant surgeons.

Appointment of Dr. Holmes.—Dr. Rudolph W. Holmes has been appointed obstetrician to the Passavant Memorial Hospital.

To Protect Babies.—Commissioner of Health Reynolds has issued an appeal for voluntary medical inspectors for a few weeks' service in the overcrowded tenement districts. The scope of the service is indicated in a circular letter to the volunteer medical inspectors. This inspection and relief service are not intended, except incidentally and in case of emergency, as a medical charity. Primarily its object is the instruction of mothers and those in charge of infants and children in the hot weather hygiene of the young—their feeding, clothing, bathing and care—with a view to the prevention rather than the cure of disease. Secondly, but of equal importance, its objects are the correction of sanitary defects and the abatement of nuisances prejudicial to the health of adults and children alike. Dr. Reynolds believes that such missionary work at the beginning of the hot season will result in a large saving of life.

GENERAL.

Gall-stones in Germany.—A German specialist estimates that in his country one out of every ten persons has gall-stones.

Bellamy Storer's Gift to Hospital.—Bellamy Storer, United States Minister to Spain, has given $2,000 toward the fund for building the annex to Glockner Sanitarium, Colorado Springs.

Carl Binz.—The seventieth birthday of this celebrated professor of pharmacology at the University of Bonn was recently celebrated by appropriate articles in various German medical journals.

A German Society for Combating Venereal Diseases.—Such a society is in process of formation at Berlin under the leadership of Kirchner, Lesser, Blaschko, Neisser and Galewsky. It is modeled on the basis of similar efforts against tuberculosis and alcoholism.

Inhalation during Antiquity.—A German investigator has found numerous references to this therapeutic measure in the writings of the ancients, who employed it both for narcotic and astringent effects. Herodotus, Pomponius, Plutarch, Pliny, and Apollodorus mention various leaves, fruits and roots used by inhalation in the treatment of coughs, nose-bleed, headaches, and insomnia.

Appointment of Dr. His.—Wilhelm His has been appointed professor of internal medicine and director of the clinic at Basel to succeed the late Friedrich Müller.

Climate and Sickness.—In the April "Bulletin of the Geographical Society," Prof. R. De C. Ward of Harvard uses the Report for 1901 of the Surgeon-General of the Army as a basis for "Notes on Climatology" in review of the medical aspect of tropical climates as affecting our troops. Disregarding the distinction between climate meteorologically considered and the conditions inseparably connected with it, we recognize that prolonged tropical residence diminishes the white man's energy and power of continuous work, and, besides, makes him liable to distressing diseases which, if not peculiar to those zones, at least flourish there with special virulence. Convalescence is slow, if it occurs at all on the spot. Military service renders our troops in the Philippines particularly susceptible to the effects of the climate and to climatic diseases. A special disability is tropical dysentery, of which there are two distinct forms. One is very serious, with an acute course, although not necessarily fatal. The other is marked by gradually increasing relapses, with intervals of remission and apparent recovery. The milder dysentery of temperate climates is also found in the tropics as a third variety. In the chronic form of tropical dysentery, nine times out of ten the only hope for recovery is transfer to a cooler climate, but medical officers as such have no authority to send men beyond the limits of the command, and their judgment is not always transmuted into orders by the officer who has such authority. So the high death and discharge-rates of the first eighteen months of Philippine occupation were in part due to executive inappreciation of expert advice. The fear of weakening the nominal strength present, and of exciting alarm at home by the arrival of successive shiploads of invalids, does not prevail now, and the men have in that, and in less disturbed conditions, a better prospect. Necessarily much grave sickness must be expected among troops suddenly transferred to unaccustomed fields, but Professor Ward errs in supposing that the admission-rate for intestinal diseases of 465.01 per 1,000 for the army at large represents admission to hospital. The rate is that at which men are excused from active duty, for short as well as longer periods, by admission to the sick-list. They may be sent into hospitals, but the majority are not. The soldier is non-effective for the time, but in the United States army the sick-rate is not purely a hospital-rate, but only inclusively, and, of course, it is probable that most of the sick men not in hospital are not seriously ill. In the British army the admission-rate does mean the hospital-rate exclusively, and is, therefore, not comparable with our own. So of the 465.01 only 94.83 were dysentery cases, the others being classed as diarrheas. In the China expedition the rate for this group was 1,266.54, of which 1,041.60 was for diarrhea. The total deaths emphasize the disparity in severity between the subdivisions of the group. These were 649, all but 84 being for dysentery; and probably of the 84 better discrimination at the beginning would have classed a number under the more dangerous disease. In the China expedition, with its enormous admission-rate, there were only 31 deaths, all from dysentery, in this group. But a complete view would add to the mortality of 649 those discharged from the army for disability to the number of 181, as well as those who, incapacitated, remain in service beyond the period of this report. The latter would be accounted for in subsequent reports. The yearly military death-rate from disease in the Philippines of 20.26 per thousand, exclusive of that for discharges for disability, represents that obtaining among vigorous males of selected adult age, in spite of the fact that competent medical attendance is always available. By comparison, in Boston the average death-rate for males between twenty and fifty years old is but 3.42. Professor Ward has credited to a naval medical officer observations upon the China forces made by Majors Banister and Ives, respectively, of the Army medical staff.

American Association of Orificial Surgery.—The fifteenth annual meeting of this association will be held in Chicago, September 10 and 11, 1902. A program is being made up of lectures and papers by the leading specialists and practitioners in rectal, genito-urinary and gynecological work, and in the treatment of all chronic diseases. The orificial surgeons are the workers in the great field of the reflexes and the profession generally is every day being brought closer to a realization of the fact that the reflexes play a most important part in the chronic manifestations of disease. Papers and discussions will cover the entire scope of the work, preparatory, operative and therapeutic, and the sessions will be of great benefit to all who attend. H. C. Aldrich, M.D., of Minneapolis, Minn., President. Ralph St. J. Perry, M.D., Secretary, Farmington, Minn.

The Columbian University.—The following changes and additions have been made in the Medical Faculty of the Columbian University: Dr. Walter Reed, U.S.A., has been elected to the chair of general pathology; Dr. Sterling Ruffin, to the vacancy in the chair of practice of medicine; Dr. Thomas Claytor to the chair of materia medica and therapeutics; Dr. H. B. Deale, professor of clinical medicine; Dr. H. N. Hawkes, professor of clinical medicine; Dr. James Carroll, associate professor of pathology and bacteriology.

Government Food Tests.—It is reported in the daily press that the United States Government will establish a free table for people who are willing to have their stomach experimented with. The purpose is to conduct experiments to determine whether the foreign substances added to food products are detrimental to the health of man. While Dr. Wiley is in Europe the Civil Service Commission will hold examinations and prepare an eligible list of expert physiological chemists to aid him in the work. Congress appropriated $10,000 for it. After that healthy young men who are willing to eat free food that may or may not have deleterious ingredients will be in demand. A report to the effect that anybody who wanted a free meal would be accepted by the bureau resulted in great agitation among the "hobo" brigade. Weary Willie, Roaming Riley, and their colleagues are besieging the bureau for information. None of them, it is to be feared, will get even a sight of the free food products with the foreign substances. If Dr. Wiley can get permission to experiment on college students they will be his preference. He wants to get some college to let him set up a "training table." Each student who eats at this table is to give his word of honor not to eat anything except what he gets at the Government restaurant. The first ten days or so will then be devoted to feeding the subjects a good healthful quantity of the ordinary foods with no object in view but to get them in a perfectly normal condition. Then the effect of a certain chemical—borax, for instance—will be tried. After the effect of this has been noted, another preservative chemical in common use will be taken up; then a coloring substance, etc., until the gamut of color and preservative has been run and the bureau has obtained data enough on which to base correct conclusions. A system similar to this is to be tried in the United States Army, when new rations will be tested.

The Donor of Yale Clinic.—Mrs. Thomas G. Bennett is the donor to Yale University of the new clinic for the Medical School. Not until recently could the identity of the giver be learned. The building is now nearly finished, at a cost of $96,000. Mrs. Bennett's husband for a number of years, and until July 1st last, was a member of the Yale corporation.

Obituary.—Dr. Arthur Ward, one of the oldest and best known physicians in Newark, N. J., died last week at his home, in that city, of a complication of diseases. He was nearly seventy years old. His wife died about three months ago. Dr. Ward had practised for nearly half a century in Newark and was noted for the great amount of work he did among the poorer classes without pay.

Dr. David P. Fleming died on Wednesday last at his home in New York, of acute Bright's disease. Dr. Fleming was thirty-six years old, and was born in New York. He was admitted to the Bar in 1892, but two years later began the study of medicine and was graduated from Bellevue Medical College in 1896.

Dr. John Newell Tilden died at Peekskill, N. Y., last week, from a complication of diseases. Dr. Tilden, who was a member of many societies, was born in Onondago, N. Y., June 10, 1842. He was educated at Syracuse University, Hamilton College and the Long Island College of Physicians and Surgeons.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, July 5, 1902.

THE ILLNESS OF THE KING—THE GARGANTUAN MEALS OF ROYALTY—LORD LISTER AND THE USE OF DRAINAGE-TUBES—CORPORATION HONORS.

THE Cassandras who predicted that the King would not live to be crowned, and the wiseacres who always know the real facts of everything—after the event, are naturally exultant at the "fore knowledge absolute" of which they claim to have given proof. Careful inquiries in the right quarters, however, seem to show that the catastrophic development which nearly turned the viands prepared for banquets into funeral-baked meats came with almost as great a shock on the King's physicians as on the man in the street. The most absurd accounts both of the disease and of the operation have been published even in the best of the daily papers. The Bishop of Worcester, who is one of the lamps of the Church of England, is very indignant that he and the public generally were not forewarned as to what they might expect. They had been told, said his Right Reverence, they were to expect good and not evil. It was no good for them to have to feel that the rumors of clubs and streets were right and official declarations wrong. It was no good for those who desired to be all that loyal citizens ought to be to believe that the language of authority was unreal and not in relation to facts. He said this at that moment, and in that place, because it seemed to him that these were moments when the Church of Christ must ask those in authority and high places to do the utmost possible to tell the truth.

This may be taken as an index of the feeling of a considerable section of the British public when the news of the operation came as a thunderclap which drowned the noise of the multitudinous hammers driving in the last nails in preparation for the ceremony. But the episcopal eloquence was wasted, for there is no reason whatever to doubt that the official bulletins substantially told the truth as to the operation. The King had a large foul abscess in the neighborhood of the cecum; this was opened extraperitoneally and drained and is now granulating from the bottom. There is nothing extraordinary in the surgical aspects of the case; the greatest source of danger doubtless has been the over-anxiety of the physicians. When Marie Louise was in her time of travail Napoleon impressed upon the accoucheurs that they must treat the Empress exactly as if she were the wife of a small shopkeeper. King Edward has been a submissive patient and Sir Frederick Treves has sufficient force of character not to allow the rank of the patient to unsteady his nerves or disorder his judgment. As far as I can learn, there is no reason to fear any complications in the forms of adhesions. The worst danger lies in the unsoundness of the royal constitution, which every effort is made in the bulletins to hide, but which nevertheless now and then shows through the carefully guarded official language used.

To those who know anything of his mode of life the wonder is that his health is so good as it is. Like his mother, the late lamented Queen Victoria, he requires an abnormal amount of nourishment. In a collection of satires on Society, entitled "An Onlooker's Notebook," which has just appeared, there occurs the following interesting passage:

"An Illustrious Couple arranged to pay a two-nights' visit at a country house of which the owners were friends of mine. For reasons of expediency we will call the visitors the Duke and Duchess, though that was not their precise rank. When a thousand preparations too elaborate to be described here had been made for the due entertainment of them and their suite and their servants, the Private Secretary wrote to the lady of the house enclosing a written memorandum of his master's and mistress's requirements in the way of meals. . . . The day began with cups of tea brought to the bedroom. While the Duke was dressing an egg beaten up with sherry was served to him not once, but twice. The Duke and Duchess breakfasted together in their private sitting room, where the usual English breakfast was provided. They had their luncheon with their hosts and the house party, and ate and drank like other people. Particular instructions were given that at five o'clock there must be something substantial in the way of eggs, sandwiches or potted meat, and this meal the illustrious couple consumed with special gusto. Dinner was at 8.30 on the limited and abbreviated scale which has superseded the hecatombs of Francatelli. But let no one suppose that the Illustrious Ones went hungry to bed. When they retired supper was brought up to them in their private sitting room, and a cold chicken and a bottle of claret were left in their bedroom as a provision against emergencies."

The "Duke" referred to in this passage was a Prince when it was written and is now more than a Prince; it is unnecessary to dot the i's more plainly. The writer of the book, Mr. G. W. E. Russell, is a member of the great Whig family of that name, of which the Duke of Bedford is the head. Mr. Russell knows what he is speaking about. Besides, the Gargantuan repasts of royalty are matters of common notoriety. Evidently the British crown needs a great deal of support. At the end of the last century some friends of popular freedom asked Parliament to pass a resolution affirming that "the power of the crown has increased, is increasing and must be diminished." A few years ago it was urged upon Edward the Seventh, who had not then come into his kingdom, but who was threatening to become the greatest man in the Empire, that a similar resolution having reference to the bulk and weight of his own royal person might be passed with advantage. He therefore—doubtless to the disgust of his physicians in ordinary—put himself into the hands of a practitioner who makes a specialty of producing the effect desired by Hamlet, described by his mother as "faint and scant of breath," when he prayed that his "too too solid flesh would melt." The King lost something of his superfluity of tissue and he still submits to some curtailment of his diet. But he might with advantage to his health practise for a time John Abernethy's advice to an Alderman suffering from much eating of turtle "to live on sixpence a day and earn it." So well have his habits in this regard been known to those of his lieges who were familiar with his mode of life that the occasions when he honored the mess of the Life Guards, or other crack regiment, with his presence were known among the officers as "gobble nights." His Majesty not only eats much, but bolts his food so that it is difficult for the servant told off to look after him to keep pace with him. The wonder is that he should not have needed the services of an abdominal surgeon long before.

In connection with the facts that drainage-tubes were used, it may be interesting to mention that the first patient on whom Lord Lister used drainage-tubes was Queen Victoria. In the early '70s the late Queen suffered from a large axillary abscess which burrowed under the mamma and was very difficult to drain. India-rubber tubes were used with success. It may not be inappropriate here to recall the fact that Her Majesty was one of the first patients whom Sir James Young Simpson delivered under chloroform. It was a bold measure, which was fully justified by its success, and did much to popularize the use of chloroform among women of lower station.

A shower of Coronation honors has, as predicted, fallen on the medical profession; it is scarcely possible to go to a medical gathering without cannoning against a baronet or finding one's self elbow to elbow with a Knight Commander of the Bath. As for Simple Knights, or "Knights Bachelors" as they are called, they are too common even *monstrari digito*. Details will be given in my next letter.

FOREIGN SOCIETIES.

German.

THE RELATION BETWEEN INFECTION AND THE GLYCOGEN ACTION OF LEUCOCYTES—ACTINOMYCOSIS OF THE HEART—RENAL PATHOLOGY—RECTAL PROLAPSE—TALMA'S OPERATION—SHUTTING OFF PART OF THE INTESTINAL TRACT—EXTIRPATION OF THE KIDNEYS AND THE DIAGNOSIS OF NEPHRITIS BY CRYOSCOPY—THE FUNCTIONAL DIAGNOSIS OF THE KIDNEYS—PALLIATIVE OPERATIONS ON THE SKULL—THE OPERATIVE TREATMENT OF CHRONIC OBSTIPATION—OBSTRUCTION OF THE INTESTINE AND ANASTOMOSIS IN PERITONITIS—PLASTIC CLOSURE OF DEFECTS IN THE BILE PASSAGES BY SEROSA-MUSCULARIS FLAPS TAKEN FROM THE STOMACH OR GALL-BLADDER—THE PERMANENT RESULTS OF FORCIBLE STRETCHING IN CONTRACTURES ABOUT THE KNEE WITH TRANSPLANTATION OF TENDONS—THE DIAGNOSIS OF MYOSITIS OSSIFICANS TRAUMATICA—PRIMARY TUMOR OF THE LUNG.

THE Twentieth Congress of Internal Medicine was held at Wiesbaden from the 15th to the 18th of April, 1902. At its various sessions the following interesting papers were discussed among a great many others of much merit.

KAMINER (Berlin) read a paper on the relations between infection and the glycogen reaction of leucocytes. This reaction he stated is obtained through cultures of and the toxins of streptococci, staphylococci, pneumococci, Friedländer's bacilli, typhus bacilli, bacillus pyocyaneus, bacterium coli communis, anthrax bacillus and through the toxins of diphtheria. The reaction is not produced through the toxin of tetanus and those elaborated by the bacilli of hen cholera. Through an enormously high degree of immunization it is possible to hinder the normal susceptibility of the leucocytes to iodine, which should be normally present after the diphtheria toxin has been acting. The normal marrow of the bones contains no cells which are susceptible to iodine. On the contrary, however, they may be found in the marrow whenever they occur in great abundance in the circulating blood. Of the various significances which iodine has attached to it through the brown color which it gives to various substances, the one described by Ehrlich is the most probable.

V. SCHRÖTTER (Vienna) read a paper on that medical curiosity, actinomycosis of the heart. The diagnosis was clinically established before death by the actinomyces, the formation of fistula in the mediastinum, cardiac arhythmia, pericarditis, weakness of the heart, and edema through interference with the circulation. It was further established at the autopsy. The author showed not only the heart itself, but microscopical sections made in series at various levels through the heart. The muscle tissue was very little affected; only in the connective tissue substance were the little masses of actinomyces found and around these small cell infiltration. These really produced relatively large masses between the muscle fibers just as they do in actinomycosis of other organs. Notwithstanding this extremely damaged heart the patient lived a long time with it and followed the occupation of day laborer.

ROSENFELD (Breslau) read a paper on the general pathology of kidney disease. The microscopical distribution of fatty tissue is in the human kidney comparatively unimportant. On the one hand the amount which is distinguishable by chemical examination may or may not be increased above the normal, and on the other hand the same examination may apparently show it abnormal when this is not the case. Microscopically normal kidneys may show an apparent increase in the fat tissue. Pathological kidneys may average in the amount of fat they contain the same as normal kidneys, and the line of demarkation with respect to this fat tissue between the normal and the abnormal is very difficult to draw and follow. In dogs normal kidneys average 21.8 per cent. of fat by weight. In these animals (dogs) the total amount of fat in normal kidneys is not altered in any way after poisoning with phloridzin, phosphorus, bichromate of potash, and other similar poisons, but is decreased to about 17 per cent. by cantharides and chloroform. Alcohol alone appears to increase the quantity of fat. If one averages the weight of fresh and dry kidney substance per kilo of the total body-weight and likewise the amount of fat tissue in the same series it will be found that there is no special poison which constantly increases the amount of fat. In the case of chloroform and cantharides, the apparent decrease seems to be due rather to an increase in the other elements of the organ. Sometimes this may follow the line of decrease rather than increase. In the case of an increase in the amount of chloroform or alcohol consumed there is probably no consequent fatty degeneration of the kidney.

Another German Congress which has been recently held is the thirty-first reunion of the German Society of Surgery, which occurred at Berlin, from the 2d to the 5th of April, 1902.

V. EIS (Vienna) presented a contribution on the operative treatment of large prolapses of the rectum. After describing the customary methods of treating prolapse of the rectum, namely, massage, narrowing of the anus after Gersuny's method, resection and various forms of suture, with a brief criticism of each, the author gave his results with them upon such material as has passed through his hands. Massage has given him very favorable results. A twisting of the rectum and narrowing of it after Gersuny's method has never in his hands succeeded well. A resection of the bowel has been in several cases necessary after using this method. Moreover, not every case is at all applicable to this method. Latterly in twelve patients he has tried fixation of the rectum to the anterior abdominal wall, kolpopexia, and has obtained good results. The method of operating is briefly this: An oblique incision is made over Poupart's ligament. The sigmoid flexure is seized and stitched carefully to the front wall of the body. Recovery was uneventful in all patients. Out of his total number he has had three recurrences. Of these he cured one by a second operation like the first. In another in whom the flexure was unusually long he had a fatal outcome through a hematemesis following an ulcer of the duodenum which, of course, had nothing whatever to do with his treatment of the rectum. The third of these relapses he cured by making an anastomosis with a Murphy button with entire satisfaction. The author further states that for all slight cases massage after the method of Brandt is the treatment of choice, while in severe cases the above scheme of kolpopexia is indicated.

BUNGE (Königsberg) read a paper on Talma's operation stating that the fixation of the omentum to the anterior abdominal wall can be carried out both intra- and extraperitoneally. The numerous experiments upon animals which he has made have proved to him the advantage of Talma's operation. In the clinic of Königsberg there were eight cases of cirrhosis of the liver with ascites with two failures, four cures and two deaths. The present total reported in literature of this operation is now 90 cases with 32 cures, that is, the ascites was corrected. In addition in a few instances hematemesis was stopped. He considers Talma's operation modified by suturing the omentum to the spleen as well as to the abdominal wall is the best method extant for correcting difficulties in the obstruction of the portal circulation. The suturing of the spleen within the omentum has been carried out by him only twice in man. But he considers it a most assured method of establishing a collateral circulation for the portal system. He then described the usual dangers of the operation characterized by kinking of the intestines from the intra-peritoneal fixation which is usually not of importance. On the other hand, the extra-peritoneal method of suturing the omentum provides the danger of ventral hernia. There delirium is frequently present, with cramps which are apparently due, at least so far as experiments upon animals will show, to the errors in the chemical alterations of carbonic-acid gas in the urine. This can be largely corrected by decreasing the amount of meat fed to the animals. The author thinks this operation is justifiable when diabetes is present. Chronic jaundice, bile in the urine and other diseases and conditions going with faulty liver action are contraindications of it.

PRUTZ (Königsberg) read a paper on the results of reversing sections of the intestine, especially with reference to its bearing on indicanuria. The author reviewed the historical records of the attempts made up to the present time to isolate parts of the intestinal tract and to estimate its bearing upon the dangers to life. He then added his observations in twelve experiments of his own. Without exception he found in a short time a widening at both ends along the suture lines. Very frequently there remain undigested masses of various foodstuffs within this intestine, especially pieces of bone and perhaps straw. Atrophy of the muscularis is very common. In the urine there is an enormous increase in the amount of indican which quickly rises to a maximum and remains at a very high level. In one case he obtained through the reversal of the intestine the paradoxical condition of a dilatation distal to the stenosis. His experiments as to the metabolism taking place in these animals showed that reversal of the intestines without exception brings about severe damage to this function of the body. This fact seems to furnish the key to understanding the cachectic results which follow this experiment. They do not, however, have much bearing upon the clinical results of stenosis of the intestines.

KÜMMELL (Hamburg) read a paper discussing the results of successful extirpation of the kidney and the points of diagnosis of nephritis determined by cryoscopy. In the urine of 265 patients he determined the freezing-point and feels that he has at the present time much cleared the question whether the freezing-point of 0.56 C. is the normal for healthy kidneys. Insufficiency of the kidneys as a rule begins at the average temperature of 0.61 C., a point which indicates that an operation should not be attempted. He has tabulated his results and shown the value of the determination of freezing-points in the presence of various diseases of the kidneys which in common are in agreement with similar indications obtained by catheterism of the ureters, as to whether an operation is indicated or contraindicated. He then discussed the subject of nephritis in general, which he considers almost always a double-sided condition, on which, through itself, occasional pains and bleedings are often brought under the hand of the surgeon. On the question of bleeding from the kidney he agrees entirely with Israel's contention to the effect that this condition never exists without some anatomical and pathological basis to account for it. Aside from the two reported cases of Schede and Klemperer there appears to be no well-established exception to this rule. Hemorrhage in nephritis he has also found to be usually double-sided. In the treatment of nephritis he compared the procedure of Israel with that of Edlefsen, which relies upon the methodical tearing off of the capsule of the organ, while Israel aims to stop the symptom by splitting the entire organ. He is surprised that Edlefsen has regarded nephritis as a single-sided condition. He closed by emphasizing the value of the freezing-point as a means of substantiating the findings of catheterism of the ureter.

LÖWENHARDT (Breslau) presented a contribution on the diagnosis of kidney function. The speaker regarded cryoscopy as probably the most valuable means of investigating the condition of the kidney functions. It is possible and, in his opinion, advisable to corroborate cryoscopy by testing the electrical resistance of the urine. He discussed this subject, stated his results, and exhibited tables which show that electrical resistance always agrees with the changes in freezing-point. A probably original procedure with this author consists in an apparatus with a telephonic connection by which the resistance of the urine can be heard. An induction coil is so arranged that it is just impossible to hear anything in the telephone with the urine in the circuit as a resistance. Resistances of known value are put into the circuit until the same result is obtained and then a reading is given, which, of course, will equal the resistance of the urine, which naturally has been removed out of the circuit during the second part of the experiment.

A. **Sanger** (Hamburg) read a paper concerning the palliative operations on the skull in inoperable tumors of the brain, stating that in the presence of every such tumor a trepanation should be done with splitting of the dura. He then presented a patient in whom a cerebellar tumor made such an operation necessary from its clinical features. After an early marked improvement through treatment with inunction, the patient was seized with threatening symptoms proceeding from the brain. His skull was opened but nothing definite was found. After this improvement occurred for two and a half years until finally difficulties with speech appeared, with a staggering gait and pains in the head. The author then read the histories of eleven cases of brain tumor in which this operation alone with no other treatment had relieved pressure upon the brain and brought about distinct improvement, including disappearance of a swollen papilla and of headache.

Francke (Braunschweig) discussed the subject of operative treatment of chronic obstipation. In one patient suffering from this condition he has twice done a laparotomy in order to establish anastomosis between the ileum and the sigmoid flexure and then the second stage concerned a unilateral isolation of the colon. Success followed this second procedure.

Heidenheim (Worms) took up the important subject of peritonitis followed by obstruction of the intestines treated through anastomosis. He thinks that the great majority of patients suffering from peritonitis die not of the inflammation or of the sepsis so much as of the secondary paralysis and obstruction of the intestines. This follows in peritonitis not so much through adhesions, but through the important factor of paralysis. In four of his patients in whom he found such an obstruction he made on the proximal side of the apparent point of the difficulty an anastomosis and was pleased to obtain a most brilliant result. Only one of these patients died because he had overlooked an abscess in the cul-de-sac of Douglas. He adds his conviction that a patient may have a large evacuation of feces and gas from the intestine and yet suffer an inflammatory obstruction. Such examples he has seen. He does not, however, under any conditions agree with Doyen as to the advisability of making a fecal fistula.

Kehr (Halberstadt) read a paper in which he described an ingenious means of closing defects in the bile passages by means of plastic flaps, comprising the serosa and muscularis and taken from the stomach and gall-bladder. His first premise is that these defects of the bile passages do not often follow short incisions, 3 to 4 cm. long. At least in his own experience he has always seen rapid healing follow such if the bile itself is sterile. If, however, the bile is infected, the margins of the incision soon become necrotic. His second premise is that these defects may arise from injuries to various arteries in the neighborhood. He has found that these defects can be quickly and permanently cured by making flaps which comprise the serous and muscular coat of the stomach or gall-bladder, depending upon the proximity of the sinus to either of these organs. He suggests that when possible stenosis be avoided by making the suture line run transversely to the axis of the duct. If this cannot be done the suture line must, of course, be parallel with it.

Heusner (Barmen) discussed the permanent results following the forcible stretching of contractures about the knee with transplantation of tendons. He described the cases of transplantation of the semitendinosus and biceps upon that of the quadriceps. These he had presented to the society at the meeting last year and called attention to the fact that in one of the cases in which he had made use of the biceps tendon, internal rotation and other contractures had resulted. For this reason he does not recommend this special procedure. Since then he has treated three other cases with transplantation of tendon, one of them in the presence of more or less severe rheumatism of the joint. In this patient both the biceps and semimembranosus were transplanted. He took the latter muscle because its expanded tendon permitted a better suture than that of the semitendinosus.

Vulpius (Heidelberg) had a paper on the subject of the diagnosis of myositis ossificans traumatica discussing two theories concerning its origin. First of all it may arise from fragments of periosteum torn away with the muscular attachment and carried more or less within the muscular tissue. This periosteum then produces bone and makes it appear as if the bone arose within the muscle. He operated upon one case in which this condition was clearly established; the development of the bone had taken place by an unexplained manner within the muscle tissue itself, and had caused practically bone cysts within the tissue muscle. He showed a specimen of this condition.

Wagner, at the Medicinische Gesellschaft in Chemnitz, March 19, 1902, reported two cases of primary tumor of the lung diagnosticated from clinical signs before death. The first patient was a 25-year-old artisan, the victim of a cerebral paralysis from childhood and of a left-sided exudative pleurisy of normal course. These were his only previous illnesses. In the beginning of 1901 he took sick with pains in the right upper region of the chest, a dry cough and slight fever. Upon examination in February there were widely-dilated veins above and below the right collar-bone, a marked dulness with the feeling of fixed resistance and high-pitched loud bronchial breathing without any râles from the third rib in front upward over the tip of the lung down to the spine of the scapula behind. The left vocal chord was also affected (paralyzed). The diagnosis was sarcoma of the lung. Twelve days after he was suddenly seized with severe dyspnea, transferred immediately to the hospital and a tracheotomy was performed in the hope of saving him, but death soon occurred. At the autopsy a spindle-cell sarcoma was found involving the whole of the right upper lobe except a small mass about the right main bronchus. The tumor involved the vena anonyma, subclavia, and the right aorta. The second patient still lives at 43 years of age, a blacksmith by occupation, dating his sickness from about a year ago with pains in front on the left side of the breast, an annoying dry cough, and later, a dirty, slimy, fluid expectoration. Examination of the lung at the present time shows dulness on the left side from above down to the second rib, beginning between the median and papillary line, entering below more or less into the normal dulness of the heart, accompanied by sharp bronchial breathing without râles. The heart is twisted about three finger-breadths over the right margin of the sternum. Over the whole of the left lung, which seems to take part very little in the function of breathing, there is a high-pitched, somewhat weakened, somewhat indefinite breath sound, and a remarkably decreased, almost absent, voice fremitus. The X-ray picture showed a deep shadow corresponding with the area of dulness, otherwise there were normal conditions. The probable and even almost certain diagnosis is a carcinoma at the root of the left lung, compromising a large amount of the air-passages within that organ.

PUERPERAL HEMORRHAGE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: You will place me under great obligation by permitting me to correct some statements made by Dr. George Seymour in a paper entitled "Puerperal

Hemorrhage" published in the issue of May 24, 1902, of your journal.

Dr. Seymour, in referring to an article of mine (American Medicine, January 11, 1902), states: "The latter (Dr. Ehrenfest) summarizes his paper by flatly repudiating the statistics he quotes in saying, 'The results of Cesarian section are worse than is usually stated.'"

I fail to see how I flatly repudiate the statistics which I quoted. All the papers written in favor of Cesarian section in cases of placenta previa state that the mortality of Cesarian section is very low, some going so far as to claim that Cesarian section has no mortality at all. I believe that I show clearly by the statistics which I give that statements of this kind are unjustifiable and erroneous.

Dr. Seymour reproaches me with "giving much emphasis to what he (Dr. Ehrenfest) terms his method, which he teaches and which we all know is almost as old as the oldest medical literature and teaching."

I am entirely at a loss to understand what led the doctor to infer that I claim any priority or credit for *my* method. If the doctor will take the trouble to look more carefully over my paper he will see, that No. 6 of my conclusions, dealing with what *he* terms *my* method, reads as follows: *"A careful study of the published statistics shows that the most promising treatment of placenta previa is the following."* Does that not clearly indicate that I merely reported the method of others, which experience has proved satisfactory?

Finally, I regret to note that Dr. Seymour considers the modern method of treating placenta previa to be identical with "the practice in vogue for centuries" except for the introduction of antisepsis and asepsis. I do not desire, however, to enter here into a discussion as regards the proper treatment of placenta previa since I shall have occasion to do so elsewhere.

HUGO EHRENFEST, M.D.

St. Louis, Mo., June 27, 1902.

SOCIETY PROCEEDINGS.

THE AMERICAN PEDIATRIC SOCIETY.

Fourteenth Annual Meeting, Held at Boston, May 26, 27 and 28, 1902.

FIRST DAY—MAY 26TH.

President's Address.—Dr. W. S. Christopher of Chicago said that development was the keynote of pediatrics. No branch of medicine had so large a field yet to be explored, more possibilities of usefulness, or deals with more fundamental biological truths. The subject of pediatrics was a part of general medicine, but general medicine was free from active interest in the subject, and in practice and teachings many important factors were omitted. Pediatrics was preventive medicine of the highest order, because the developmental period of human life could be so strangely acted upon by environment. Dr. Christopher referred to the writings of John Fiske, stating that the longest period of development was to be found in man,, and that a long period of development was associated with complex life activities. The more complex the life of an animal, the more nerve connections must be established to control the varied experiences. In the course of development a period was finally reached in the animal scale when the necessary nerve connections could not be established before birth, but were partly established by education after birth, thus giving rise to a period of infancy. The course of natural development, the pathological conditions dependent upon deviations from this course, together with the influence of environment, were factors of sufficient moment to create the subject of pediatrics. The consideration of the anatomical development was easy; functional development had not been so well studied. Of the environmental factors, nutrition and infection were preëminent, which physical and mental acts a close second. Dr. Christopher thought that the establishment at Washington of a laboratory for the study of the criminal and pauper classes, at present being considered by the Department of the Interior, should be favored. Such investigations would furnish valuable data for the study of child development.

Intussusception: Clinical Remarks.—In presenting this paper Dr. F. Huber of New York said that success in the treatment of acute intussusception was dependent upon early recognition of the lesions and a knowledge of the limitation of methods of injection and inflation. He reported the case of a male child, eight and one-half months old, weighing nineteen pounds. Its previous health had been good and there was no history of trauma. On March 21st the child was seized with a sharp attack of diarrhea; in twenty-four hours eight stools were passed which contained much mucus and undigested casein; there was no vomiting or pain. At 8 A.M. March 22nd a large liquid stool was passed without pain, but with increased peristalsis. At 10 A.M. the child was given its bath and was apparently feeling well. At 11:15 A.M. he became suddenly restless. At 12:30 P.M. a warm enema of salt solution was followed by a small stool and the passage of considerable gas. At 1:45 P.M. the child was suddenly seized with severe abdominal pain, recurring in paroxysms at intervals of from five to twenty minutes. At 2 P.M. the child vomited food; later the vomit was bile-stained, and at 4 P.M. it had a faint fecal odor. The expression of the child was anxious, the abdomen soft with a slight swelling in the region of the transverse colon. The bowels had not acted for five hours. A high rectal enema was given which was followed by a bloody mucous discharge resembling currant jelly, At 5:20 P.M. the case was seen by Drs. J. F. Erdmann and H. M. Silver. A saline injection caused a disappearance of the tumor and soon after blood and mucus appeared at the anus, but, as no feces passed, partial reduction was thought to have taken place. A laparotomy was performed and the mass reduced; twenty hours later a liquid stool was passed. Convalescence was uneventful. Dr. Huber said that Edmund Owen (Brit. Med. Jour., Sept. 7, 1901) established a diagnosis on the following considerations: Sudden abdominal pain, vomiting, passing of a stool, associated with tenesmus and containing blood and mucus, and the presence of a tumor, usually in the ascending colon. The injection was of advantage in that it might reduce the invagination or lessen the size of the tumor and thus diminish the field of operation. It should be employed only during the first twenty-four hours of the attack. The impossibility to gauge the amount of pressure and the difficulty in excluding beginning gangrene constituted the chief disadvantages of the method.

Intussusception: Surgical Comments.—Dr. John F. Erdmann of New York said that operation for intussusception was accompanied by far less mortality than when the injection and inflation methods were depended upon. An attack lasting over twelve hours should always be treated surgically. Shock was not to be considered a contra-indication but rather as calling for more rapid reduction. Dr. Erdmann said that traction on the proximal end of the invagination was apt to result in a tear; in reducing pressure should be made on the apex of the mass at the distal extremity. These two papers were discussed conjointly. Dr. Caillé of

New York said that the value of percussion in locating the intussusception should not be overlooked. Dr. Putnam of Boston asked how pressure sufficient to cause reduction could be obtained without the use of a plug to prevent an outflow of the fluid. Dr. Jacobi of New York said that the bowels were not iron pipes and that the best results were obtained by gentle pressure. Dr. T. M. Rotch of Boston considered that the testimony of museum specimens was in favor of gentle dilatation rather than of strong pressure.

Healed Septic Endocarditis.—Dr. Samuel S. Adams of Washington, D. C., spoke of his connection with the Children's Hospital of that city. He said that septic endocarditis had been considered infrequent in children, but he thought the affection far more common than was generally believed. The condition was difficult to diagnosticate, a fact which undoubtedly caused many cases to be overlooked. Osler had reported 209 cases, only three of which were under three years of age. The tendency to-day was to disregard former classifications and consider differences as of degree rather than kind. Dr. Adams reported the case of a child six years old that had recovered.

In discussion Dr. Jacobi thought that these cases were caused either by the presence of bacteria or toxins. In those types termed malignant, bacterial deposits were usually found on the valves. Cases dependent upon toxins were apt to get well because the toxin was sooner or later expended or eliminated.

A Case of Chondrodystrophy Fetalis.—Dr. John L. Morse of Boston reported the case of a male child who died at the age of four months. At two months he weighed six pounds and was apparently of average intelligence. With the exception of very short legs the child was normal. Dr. Morse said that knowledge of the etiology of this condition was very deficient, heredity probably playing an important part. Most cases died early; mild cases frequently reached maturity.

In the discussion Dr. J. P. C. Griffith of Philadelphia reported two cases which were considered chondrodystrophy fetalis. The patients had paddle-shaped hands and feet. Dr. L. Emmett Holt of New York gave the history of a case four years old in which he had used thyroid almost continuously for two years without apparent inprovement.

The Management of Rheumatic Children.—Dr. F. M. Crandall of New York called attention to the frequency with which symptoms of rheumatism in children were distributed over months and years and not massed as in adult cases. Many symptoms were habitually found in children which were rarely seen in adults. The management embraced the subjects of clothing, exercise, diet and medication. Flannel should be worn all seasons of the year, thin in warm weather. Exercise and outdoor life should be encouraged in rheumatic children; they should be carefully housed, however, when damp east winds are prevailing or the streets filled with slush. The diet should be generous and nourishing. The marked tendency to anemia in these children was a fact too often overlooked. Restrictions in diet should be in the direction of sugars and starches. In considering the subject of medication, Dr. Crandall said that much could be done to prevent acute outbreaks by the use of salicyl compounds, which should be administered in small doses three times a day, a week at a time of every month of the year. In active treatment the physician should aim to control the fever, relieve pain and check any local symptoms by neutralizing the effect of the rheumatic poison, and should try to prevent the involvement of serious structures, especially the heart. The methods of treatment in vogue at the present time were the alkaline and the salicylic. The advantages and disadvantages of each were about equally distributed. Large doses were required in either case at the outset and both methods were apt to disturb the stomach and depress the circulation. The salicylic compounds were perhaps more effectual in prevention of serous involvement. In commencing treatment the child should be given a cathartic, preferably calomel, salines having a tendency to increase anemia in children. Dr. Crandall gave sodium salicylate, forty grains a day, to a child six years old in five-grain doses every three hours. During the first three days the drug should be given at regular intervals day and night; after the third day, if the disease was under control, the intervals should be diminished. The drug should never be given on an empty stomach. Hyperpyrexia could be controlled by cold baths or cold packs or small doses of phenacetin guarded with a stimulant. Bearing in mind the rapidity with which anemia is prone to develop in rheumatic children, iron should be given as soon as the temperature is below 100° F. and a generous diet should be given as soon as possible. In carrying out local treatment, the joint should be protected from air by a flannel bandage or cotton wool. Heat would often relieve the pain in a marked degree. Oil of wintergreen was of doubtful benefit and the odor soon became very objectionable. At the beginning of an attack the child should be put to bed at once between flannel blankets or in a flannel covering and kept there until all evidence of the affection disappeared, a point in the treatment of much value in the prevention of cardiac involvement.

In the discussion Dr. H. D. Chapin of New York said that a child should be under observation for at least two years after an attack of rheumatism. Dr. Jacobi said that prevention was better than cure and that children should become more accustomed to cold water and that the throat and tonsils should receive particular attention. Dr. A. D. Blackader of Montreal said that the importance of a generous diet was underestimated. Many rheumatic children were underdeveloped owing to a lack of proper nutrition.

Typhoid Fever in Children under Two and a Half Years of Age.—Dr. J. P. C. Griffith said that it was a common belief that typhoid fever in children under two years of age was exceedingly rare. A more detailed study and greater care in diagnosis would probably tend to eliminate differences of opinion which existed on this subject. Dr. Griffith reported several cases which had come under his notice. He said that typhoid in infants under three months was not recognized during life but had been revealed at the autopsy.

In the discussion Dr. Morse said that typhoid fever was rarely found in infants in Boston. Dr. Holt thought that there was not sufficient evidence to prove that typhoid in infancy was common.

Typhoidal Appendicitis in Children.—Dr. A. Seibert of New York considered that typhoid fever in children was a subject that had received too little attention. He reported two cases of typhoidal appendicitis; the first case was of a male child, eleven years old, in whom a diagnosis of typhoid had been made. The patient was suddenly seized with severe abdominal pain chiefly localized in the right lower segment; the temperature rose to 106° F. and there were vomiting and marked prostration. An operation was deemed advisable and an ulcerated appendix removed. The wound discharged pus for several weeks. Dr. Seibert displayed several charts illustrating variations in the temperature curve.

SECOND DAY—MAY 27TH.

Report of a Case of Extreme Enlargement of the Spleen with Anemia; Autopsy.—Dr. S. McC. Hamill of Philadelphia reported the case of a child six years old, first seen in March, 1897. The family history was negative; the previous history was good. He had a sudden attack of profuse epistaxis followed by hematemesis and severe gastric pains which lasted several weeks. There was a marked prominence of the abdomen, and on palpation a large, firm mass in the upper left segment could be made out. Urinary examination was negative. The patient felt well for nineteen months, but examination showed an increase in the size of the spleen. In January, 1900, there was a second attack of abdominal pain, with hemorrhage from the stomach and bowel. In January, 1901, no change in the spleen was detected. In February of the same year the child took a severe cold and developed a third attack similar to the one described, but with a fatal outcome. The autopsy showed an adherent spleen, seven by four inches. The kidneys were larger than adult organs and exceedingly pale on section.

A Case of Venous Thrombosis Resulting in Extensive Cerebral Hemorrhage in an Infant Fifteen Days Old.—Dr. Hamill showed a specimen from this case and also a specimen of fused kidneys, an interesting accidental finding at the autopsy.

Presentation of cases of Tubercular Peritonitis.—Dr. T. M. Rotch presented six cases in which a laparotomy had been performed and read a brief history of each case. He said that the operation was not difficult and was accompanied by favorable results when performed by a skilled operator. When a diagnosis of tuberculosis of the mesenteric glands or peritoneum had been made, he considered an abdominal section indicated. Of twenty cases under his care that had undergone operation, eighteen were alive and apparently well, having been observed from two to five years after operation. Since the operation was practically devoid of risk, Dr. Rotch said that the patient should be given the benefit of any doubt and a laparotomy be performed.

In the discussion Dr. Forchheimer of Cincinnati said that although a properly performed operation was practically harmless. it was not easy to select suitable cases for operation. Dr. Koplik of New York thought that there was but little difference in the results whether operation was resorted to or not. A child should not be submitted to operation unless good medical treatment had been tried unsuccessfully. Dr. Jacobi said that if the tuberculous process was localized the child was likely to get well no matter what was done, unless the surroundings were unfavorable, in which case the disease was likely to progress. He recommended rest, good air, good food, and the giving of cod-liver oil in winter, guaiacol in summer together with sodium or potassium iodide. When the tuberculous process was disseminated no treatment was likely to be of much avail; cases of over two years' standing were almost always fatal. Results were about the same whether operation was performed or not. In closing the discussion Dr. Rotch said that it was not good medicine to resort to operation as a last hope, especially as the operation was accompanied by so little danger.

The Use of the Term Euanthem.—In presenting this paper Dr. Forchheimer said the French had adopted this term in 1882 and the Germans soon after. He thought that the term should be adopted, first, because it was etiologically correct; second, it had been adopted by the French and Germans, and there should be a tendency to make medical nomenclature international; third, time was saved by its use; fourth, it was precise in definition, as the term was applied to eruptive fevers, the connection would always preclude any doubt as to meaning. In the discussion which followed, opinion was divided as to the advisability of introducing a new and unnecessary term into medical nomenclature.

Some Remote Diseases Arising from Tonsillar Infection.—Dr. Forchheimer, in presenting a second paper, said that it had been a long-established fact that the tonsils might be the seat of infection in remote parts of the body. Among such infections were recognized diphtheria, erysipelas, tuberculosis, pneumonia, scarlatina, measles and possibly acute articular rheumatism. It was unusual to find bacteria present in the tonsil; a rapid blood-current, resistance of the epithelial coat of the tonsils, or possibly an active phagocytosis, might explain this fact. In most cases of tonsillar infection the lymph-nodes at the angle of the jaw were swollen, a fact which might suggest the possibility of bacteria being taken up by the tonsils. Having gained an entrance, bacteria were carried into the general circulation by the lumph or the bloodstream. Several authorities were quoted to show that bacteria had been found in the blood. The remaining factor necessary for remote infection was a locus minoris resistentiæ. Toxin absorption was also capable of giving rise to remote affections. A case of typical tonsillitis followed by appendicitis was reported. After the tonsillitis had run a normal course, there was a sudden rise of temperature accompanied by severe abdominal pains in the region of the appendix. McBurney's point was sensitive and vomiting was severe. The case received appropriate treatment and recovered without operation. The appendix, being rudmentary in structure and function, formed a locus minoris resistentiæ. Another case of appendicitis following tonsillitis was reported in which operation was resorted to. The patient developed signs of nephritis, endocarditis and pyelitis in rapid succession. The septicemic symptoms occurred so soon after the operation it was thought that the infection was in all probability not from the appendix. Dr. Forchheimer also reported five cases of jaundice following infection of the tonsils. In each case the jaundice appeared in less than ten days after the infection of the throat. All gastro-intestinal disturbances which might give rise to jaundice had been carefully eliminated.

Clinical Observations in the Management of Circulatory Failure in Acute Infectious Disease.—Dr. Augustus Caillé said that it was often difficult to select a proper stimulant, because it was not always easy to determine the cause of circulation failure. Saline infusion, enteroclysis and hypodermoclysis had been used in various septic conditions with gratifying results. The infusion was followed by almost immediate results, hypodermoclysis gave a reaction in from five to ten minutes; in either case the action was more prompt than that of drugs. The salt solution was given at body temperature. At from 110 to 120° F. enteroclysis acted as a stimulant to the kidneys and thus favored the elimination of poisons.

In discussion Dr. Charles Gilmore Kerley of New York said that the colon never absorbed more fluid than the system required. He made use of a small rectal tube which was inserted until it could be felt in the descending colon. Enteroclysis had proved better than any other one measure in acute suppression of the urine and post-scarlatinal nephritis. Dr. Seibert had used enteroclysis in typhoid, but never used a catheter in this condition for fear that damage might be done to an ulcerated mucosa. One and a half pints of salt solution were injected every six hours with hips slightly elevated. Dr. Jacobi said that enteroclysis acted in two ways: It furnished a new circulating medium and at a high temperature, 110—120° F., was a powerful stimulant, acting chiefly on the splanchnic nerves. Dr. A. C. Cotton of Chicago recommended the addition of small quantities of asafetida and turpentine to the saline solution.

Chronic Parenchymatous Nephritis in a Child Treated by Renal Decapsulation (Edebohls' Operation).—Dr. Caillé reported the case of a five-year-old child who had had several attacks of severe nephritis. Nine months after the last acute attack the child was admitted to the New York Post-Graduate Hospital, where a diagnosis of chronic parenchymatous nephritis was determined upon and both kidneys were decapsulated. The kidneys were exposed by the lumbar incision, the capsules stripped off, and the organs replaced. The child recovered. The fibrous capsule of the kidney acted as a barrier between the fatty capsule, which was abundantly supplied with blood, and the kidney. When the fibrous capsule was removed a new source of blood-supply to the kidney was made possible. If recovery from a nephritis following an acute infectious disease was delayed longer than six months, Dr. Caillé recommended an exploration of the kidneys, advising decapsulation if they should be found enlarged.

Specimen of a Large Thymus Gland.—Dr. Caillé showed this specimen, which had been removed from an infarct six weeks old. The child, which had apparently been in good health, suddenly became restless, refused to nurse, was seized with a convulsion and died. Dr. Jacobi called attention to the fact that the distance between the manubrium sterni and the vertebral column was scarcely over two centimeters, and said that a congestion of the thymus lasting but a few seconds might press upon the respiratory structures with sufficient force to cause suffocation. When the body of the child was inclined forward the size of the thymus might be determined by percussing from below.

Effects of Tight Diapers.—Dr. A. C. Cotton said that the diapers ordinarily used were unhygienic. They should be made of cheese-cloth, applied loosely and well padded with absorbent cotton. The cotton should be destroyed as soon as it was soiled. Dr. Cotton showed an infant pelvis, demonstrating the fact that it was composed chiefly of cartilage and extremely flexible. Steady general compression on such a structure would tend to retard its growth and development. Radiographs were shown illustrating the effects of tight binders and diapers. Dr. Cotton said that the tendency of tight diapers to cause a bowing of the femur had been a recognized fact for some time; he also thought that tight diapers might be responsible for a certain percentage of the justo-minor pelves, so frequently found.

THIRD DAY—MAY 28TH.

Two Cases of Umbilical Fistula Due to Tuberculous Peritonitis.—Dr. George N. Acker of Washington, D. C., reported the case of a five-year-old male child presenting a typical picture of tuberculous peritonitis. During a paroxysm of coughing a rupture occurred at the umbilicus which resulted in the formation of a fecal fistula. The edges of the orifice became indurated; tubercle bacilli were found in the pus which discharged from the opening. At the autopsy the fistula was traced to an opening in the gut and to a cavity firmly adherent to the abdominal wall. In reporting a second case Dr. Acker described the condition of a colored girl eight years old who was suffering from peritoneal tuberculosis. While coughing this patient also had a rupture occur at the umbilicus. The rupture was followed by a mucopurulent discharge. After twenty-four hours a thin yellow serum was observed which had a fecal odor. At the autopsy the fistula was also traced to a sac formed by adhesions to the abdominal wall. The rupture in each case was thought to be due to a congenital defect in the abdominal wall. Dr. Chapin reported two similar cases.

Diphtheria With and Without Antitoxin.—Dr. Kerley reported observations made by him on 159 cases at the New York Infant Asylum. He called attention to the fact that all of these cases were well fed and housed and had an additional advantage of having skilled attendants and physicians within ready call. Of 103 cases treated without antitoxin 60 died; the remainder received the antitoxin and of these 3 died. In drawing inferences from his experience Dr. Kerley said that the administration of antitoxin should be delayed until after a culture had been taken in any suspicious case. Beneficial effects should be seen in from ten to twenty hours after the injection of the antitoxin; if no improvement is noticed more antitoxin should be given. If a fresh deposit of membrane be seen twelve hours after an injection, more antitoxin should be administered, even though the patient show signs of improvement. An urticaria was sometimes seen after an injection, but usually disappeared in a few days. In conclusion Dr. Kerley said that whenever there is visible membrane, antitoxin should be used; it should also be employed in every case of inspiratory and expiratory obstruction even though no membrane can be seen. Two thousand units should be used in children under one year, 3,000 units in those over a year, the amount to be repeated when necessary.

Intubation in Diphtheria.—Dr. John H. McCollom of Boston said that the hopeless condition of laryngeal diphtheria before the days of antitoxin and intubation was well within the memory of all members of the society. A brief history of the intubation-tube was given and several varieties shown. In feeding an intubated patient Dr. McCollom used the esophageal method owing to the frequent complication of middle-ear disease. A soft rubber tube open at the end was to be preferred to the catheter, which was more apt to become clogged. The mortality of intubated patients was about 25 per cent. without eliminating moribund cases. Tracheotomy might be considered a better operation when a doctor was not within easy call, since an intubation-tube was often coughed up. Whenever the patient could be properly watched, intubation should be the operation of choice, for it was attended by little shock, parents readily consented to it, and the chances of bronchopneumonia were not increased. Dr. McCullom had seen but one case in twelve hundred in which the tube was retained and had to be worn for over a year. He made it a rule to leave the tube in place three or four days, but frequently it was coughed out at the end of forty-eight hours and replacement was unnecessary. If there should be a moderate laryngeal stenosis, antitoxin should be given at once without waiting for the results of a culture. Not infrequently a diphtheritic process began in the lungs or bronchi and ascended, giving rise to a severe laryngeal diphtheria without causing a sore throat. A rigidity of the sternomastoid was often a warning sign of approaching stenosis.

In discussing the papers of Drs. Kerley and McCollom, Dr. Caillé said he thought that the results in intubation were made better by the use of sublimated calomel, the latter tending to loosen the membrane. Cases of retained tube were usually due to a cicatrix, a result of injury to the larynx. The operation should be undertaken only by those who had acquired skill in its performance. Dr. Jennings said that he never gave more than 6,000 units to any one individual; more than this he considered a waste of material. An intubated child could be fed satisfactorily when allowed to lean over the edge of the bed with the head low and suck fluids through a tube. Dr. Chapin of New York thought that much pneumonia might be prevented if the intubation-tube were frequently cleansed and the inspired air allowed to pass through a sponge kept moistened with warm water. Dr. Buckingham thought that the esophageal tube was unnecessarily severe since feeding could be accomplished by raising the foot of the bed and turning the child's face to one side. Dr. Cotton of Chicago always had tracheotomy instruments at hand when intubating a patient in case the tube should become occluded by loose membrane. Dr. McCullom said that vocal cord paralysis might cause retention of a tube as well as injury to the larynx. When loose membrane had been crowded down in the introduction of a tube, it was usually coughed out if the tube was quickly withdrawn. After introducing a tube the thread was cut if the tube could be felt in the larynx after ten minutes; swallowing the tube was an annoying, but not dangerous accident. In closing the discussion Dr. Kerley said that the poison of diphtheria should be promptly met with sufficient antidote.

Tetany of the Type called Pseudotetanus.—Dr. Irving M. Snow of Buffalo said that several cases of a pseudotetany had been described which resembled idiopathic tetany in the onset, but differed in subsequent course and termination. Dr. Snow described a case of diphtheria with persistent trismus and opisthotonos. Tetanus antitoxin was used, but had no effect; the contractions were finally controlled with morphine. Several other cases of so-called pseudotetany were cited which were associated with diphtheria, otitis media and intestinal worms.

In discussion Dr. Jacobi asked why mild tetanus should be given a new name. He knew of many cases that had been cured or relieved by chloral hydrate or morphine. These cases were increasing as the number of immigrants increased and were probably in some way associated with rickets. Dr. Holt thought that these cases of tetanus were closely associated with rickets and that intestinal intoxication might furnish an exciting cause.

The Management of Fat in the Feeding of Difficult Cases in Infants.—Dr. T. S. Westcott of Philadelphia said that precision was apt to be overlooked in the present-day effort to simplify infant-feeding. In meeting the requirements demanded by abnormal infants, mere mathematics failed. Each individual case should be studied and the aim of the physician should be to give the child the greatest amount of nourishment that could be digested. The ratio of digestive ability in infants was extremely variable and could only be determined by a careful analytical examination of the stool. In chronic gastric catarrh the percentage of proteids in the food was often lowered to prevent the appearance of curds in the stool. Several writers were quoted to show that too high a fat percentage as well as a high proteid percentage might also cause the appearance of curds in the stool. A high fat percentage was considered to be a more frequent cause of vomiting than any other condition of the food. Too much fat should always be suspected if vomiting persisted after the reduction of the proteid percentage. The favorable results sometimes obtained by the use of condensed milk and certain proprietery foods were explained by the low fat and proteid percentage which they contained. The danger of underfeeding should always be guarded against in the treatment of chronic gastro-intestinal catarrhs. A more frequent use of a cream and wheat mixture was recommended.

In discussion Dr. Chapin said that cream contained a very inconstant fat percentage unless centrifuged. He agreed with Dr. Westcott in that a food formula should be based upon a stool analysis. Dr. Holt said that if fresh milk were cooled quickly in quart bottles in four hours practically all the cream would have risen to the upper fourth. It was a common mistake to try to overcome a tendency to constipation by increasing the fats in the food, since this condition was probably dependent for the most part upon the low total solids. If the fat percentage were increased because stools were considered abnormal, trouble might be expected. The physician should endeavor to find out what a child could do and not base his feeding upon what he thought the child ought to do.

Recent Investigations upon the Proteids of Milk.—Several charts were showed by Dr. Chapin representing the results of an analysis of 200,000 quarts of cow's milk. Attention was called to the varying proteid percentages in the milk of several animals, the percentage being highest in the milk of those animals which developed most rapidly. The percentage of albumoses and peptones in the milk of various animals was compared with that of similar bodies found in human milk. Dr. Chapin said that the main object in feeding was to increase body cells. Proteids did not contain phosphorus; body cells did; from this it was thought that albumoses and peptones might be transitive forms. The question of mixing the different kinds of proteids in varying proportions opened up a field worthy of investigation.

Local Variations in the Mortality of Summer Diarrhea.—Dr. Chapin, in presenting a second paper said that while a high infant-mortality was undoubtedly largely due to the presence of multitudes of bacteria in the milk, there were other factors at work. Generally speaking, one-half of the population of New York State lived in a maritime district, the other half in country districts. A study of statistics showed that when the death-rate was high in the maritime it was low in the country district and *vice versa*. Tables of deaths during the last ten years in the maritime and country districts, together with a complete report of weather conditions, were shown, and a possible influence of the weather conditions on the death-rate hinted at. The spores of certain putrefactive bacteria which had been abundantly formed in dust of the city streets might easily infect exposed milk. Since the New York streets had been torn up in the construction of the subway, the infant death-rate from summer diarrhea had increased 58 per cent. The heaviest mortality did not occur during the hottest weeks and was apparently but little influenced by humidity. Dr. Chapin said he presented these facts with no intention of drawing conclusions.

In discussion Dr. Siebert said that the reason more children died in July than August was because in the latter month they were not there to get sick.

A Case of Auto-intoxication with Unusual Urinary Findings.—In reporting this case Dr. C. G. Jennings of Detroit described a female child, ten years of age, who had a gouty father and a neurotic mother. The patient was subject to attacks of auto-intoxication; she became languid, tongue was coated, indigestion troublesome and she vomited frequently. Following these symptoms a condition of coma developed, the child being especially sensitive to light and sound. On the fifth day of the trouble, the extremities became cold and the pulse feeble. After a free evacuation of the bowels, the patient showed marked improvement. Particular attention was called to the finding of neutral magnesium phosphate in the urine.

In the discussion Dr. Edsall said that acid-intoxication frequently accompanied such conditions. Dr. Christopher said that he had noticed a high degree of urine acidity in cases of auto-intoxication and had known cases of cyclic vomiting to have been relieved by large doses of sodium bicarbonate.

Notes on the Temperature Curve in Acute Croupous Pneumonia.—Dr. Jennings reported five cases of croupous pneumonia and called attention to a sharp remission in the temperature which occurred on the third day. The remission was not accompanied by a corresponding decrease in the pulse-rate or rate of respiration.

Report of a Case of Pneumonia.—Dr. Walter L. Carr of New York reported the case of a child, eight months old, in whom there was developed a rapidly extending pneumonia. The temperature was very irregular and bore no definite ratio to the pulse-rate. Quinine was given without any influence upon the temperature; a blood-examination was negative. The case, which was rapidly fatal, proved to be one of streptococcus infection. It was interesting to note that the child's paternal grandfather had died of a streptococcus infection three days after an injury to the tongue; a maternal aunt had also died of a streptococcus invasion.

Officers of the Society.—The following officers were elected: President, J. P. Crozer Griffith, Philadelphia; First Vice-President, Henry D. Chapin, New York; Second Vice-President. F. S. Churchill, Chicago; Secretary, Samuel S. Adams, Washington, D.C.; Treasurer, J. Park West, Bellaire, Ohio; Recorder and Editor, W. L. Carr, New York.

BOOK REVIEWS.

The Eye, Ear, Nose and Throat. Volume III. of "The Practical Medicine Series" under the general editorial charge of Gustavus P. Head, M.D. This number specially edited by Casy A. Wood, A.M., M.D. (Eye); Albert H. Andrews, M.D. (Ear); and T. Melville Hardie, A.M., M.D. (Nose and Throat). The Year-Book Publishers, Chicago.

The first division devotes 130 pages to summarizing the year's literature on the eye, the second division, 90 pages on the ear and the third, 108 pages on the nose and throat. What is of value has been collected into this handy volume which is a work of great convenience and helpfulness. The feature of classifying the material under headings enhances it still more. Giving the references on the same page as a foot-note is admirable. The undoubted value of this yearly compilation of all the literature on these subjects into one volume and the success of its predecessors place the work beyond the experimental stage. In fact the book is much needed and ought to be greatly appreciated by the workers in this field. The reviewer thinks much better paper should have been used in the book.

Die Otitischen Erkrankungen des Hirns, der Hirnhaute und der Blutleiter. By Dr. Otto Körner, Professor of Medicine and Director of the Clinic and Polyclinic for Ear and Throat Diseases in Rostock, with a preface by Ernst von Bergmann. Third Edition, with 5 plates and one illustration in the text. J. F. Bergmann, Wiesbaden; G. E. Stechert, New York.

This excellent treatise on the ear, diseases of the brain, meninges, and sinuses, has well deserved to reach its third edition since 1893. The 216 pages of scientific handling of this most interesting of all subjects in the present progress of ear-work are compact with the most recent results of advanced work by both English and American specialists as well as by the recognized European workers. It is refreshing to find the Continental investigators paying more attention of late to what is being done in America as well as in England. The form and make-up of the work are superior to that of similar books published here. The work is divided into two parts, general and special. In the former are considered statistics, special anatomy of the parts concerned, kinds of primary ear diseases which can cause intercranial suppuration, influence of the place of primary diseases in the temporal bone on the differentiation of intercranial complications, the mechanism of infection and prophylaxis of brain diseases of otitic origin.

The second division is devoted to the following considerations: Suppurative inflammation of the outer surface of the dura mater and extra-dural abscess; otitic pachymeningitis interna and intrameningeal abscess; purulent otitic leptomeningitis, meningitis and meningo-encephalitis serosa, etc.; tuberculous meningitis and brain tuberculosis extending from the ears and temporal bone; phlebitis and thrombosis of the sinus of the dura mater and jugular vein; otitic brain abscess; brain embolus following thrombosis of the carotid from middle ear suppuration and caries of the temporal bone. Only 21 pages are devoted to the first division, while 183 are given to the latter, more interesting and important division.

A feature of great value in this work, which is beginning to be called for in modern works of this kind measuring up to the requirements of the times, is a full and complete acknowledgment by page reference of all the writers who have contributed to the investigation.

Die Berufskrankheiten des Ohres und der Oberen Luftwege. By Dr. Friedrich Röpke. J. F. Bergmann, Wiesbaden; G. E. Stechert, New York.

A treatise of 147 pages is devoted to the consideration of the effect of the various classes of occupations upon diseases of the ears and upper air-passages. The subject is considered under six different headings. The first considers the various forms of industrial and handwork employments under sixteen separate classes, such as mining, metallurgy, textile industry, etc. The second heading includes all farm industries. The third, soldier life on land and sea. The fourth, the service of public conveyance, telegraph and post office. The fifth, the life of sporting people. The sixth, various other different occupations. The work is doubtless useful for quick perusal, yet must have been written only at the cost of great painstaking and research. The bibliography, which is complete, is helpfully appended to each division. The form and make-up are, as usual, with this publisher, all that one could desire.

The Social Evil, with Special Reference to Conditions Existing in the City of New York. A Report prepared under the direction of the Committee of Fifteen. G. P. Putnam's Sons, New York and London.

There have been many books written on this subject. Some few have been valuable, others worthless. This volume, we believe, belongs to the former class.

The objects which the Committee of Fifteen sought to accomplish were as follows: (1) To institute a searching inquiry into the causes of the present alarming increase of gambling and the social evil in New York; (2) to publish the results of such investigation; (3) to promote such legislation as should render it less difficult to reach offenders, and (4) to suggest and promote the provision of more wholesome conditions and surroundings.

All of these objects have been partly reached by this investigation, none of them, we believe, wholly. One radical defect in the make-up of this committee, it seems to the present reviewer, was the absence among its numbers of a member of the medical profession; and the results given show most glaringly the defects in the mode of investigation. While there is a large modicum of common sense in the presentation, there is a surplus of the consideration of the subject from the so-called moral or ethical standpoint—that viewpoint that holds up dirty linen at arms' length and with closed nostrils for fear of soiling one's clothes and offending one's nostrils. There is a great lack of an appreciation of the problem from an economic, biological standpoint, and a totally inadequate handling of the sanitary aspects of the questions.

Notwithstanding such differences of opinion as to the proper attitude to be assumed, in presenting such a work to the public, we feel that for the purposes outlined no better way of writing the book could have been devised. It is meant for the gentle, yet interested and, be it confessed, very curious public; and as physicians, sanitarians and scientists we welcome it, believing it to be the best treatise on the subject published in modern years.

Einführing in die Physikalische Anatomie. Von Hermann Triepel, Privatdocent und Prosektor am Anatomischen Institut in Griefswald. J. F. Bergmann, Wiesbaden; G. E. Stechert, New York.

This book is an essay on a new subject. It treats of two important peculiarities of tissues, tissue elasticity and resistive quality, entirely from their physical standpoint. As the author remarks in the preface, very little room is given in anatomical text-books to the physical properties of tissues, although these properties are extremely important for the accomplishment of the various functions of the organism. This introductory work consists of two parts, the theories of elasticity and resistive power in the elementary tissues themselves, and the elasticity and resistive power in the tissues and organs of human beings. We have learned to realize in recent times that the specific gravity of the body may have a very suggestive and even practical significance in the study of different forms of obesity. These studies in this volume go still farther in this direction so as to demonstrate the specific physical qualities of all forms of tissues. As befits an essay in a new field the book is eminently suggestive.

The Practical Medicine Series of Year-Books. Vol. V. Obstetrics. Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Gynecology in the University of Michigan, and Henry F. Lewis, A.B., M.D., Instructor in Obstetrics and Gynecology in Rush Medical College, April, 1902. The Year-Book Publishers, Chicago.

As might be supposed, no comprehensive treatise on this subject could be gotten into this little book. The idea of the editors has been to give an intelligent, condensed, epitome of the best work that has been done in scientific obstetrics. It is, then, simply a series of connected and arranged abstracts of the articles published in journals and periodicals relative to the physiology, surgery, therapeutics and pathology of the pregnant, parturient, and puerperal periods of reproduction. The best works have been gone over, and have been carefully collaborated. No attempt at criticism is made, but the book is offered as an index reference. It should prove valuable to those wishing a bird's-eye glance of the year's obstetric progress.

Maladies de la Voix. Par le Dr. André Castex, Chargé du Cours de la Laryngologie à la Faculté de Médecine de Paris, etc. Paris. C. Naud, Editeur, 3, Rue Racine, 1902.

This little work is written in a semi-popular vein and is intended rather for the use of singing teachers and their pupils than for the profession at large. It is the affections of the voice itself, *i.e.*, vocal disturbances without any or with but minimal laryngeal lesions, that are considered, though the effect of various constitutional and other bodily conditions likely to come into play are also discussed. The subject-matter is very attractively presented and we commend the book to all those interested.

Progressive Medicine. Edited by Dr. H. A. Hare, assisted by Dr. H. M. Landis. Vol. I., 1902. Surgery of the Head, Neck and Chest—Infectious Diseases—Diseases of Children—Pathology—Laryngology and Rhinology—Otology. Lea Brothers & Co., New York and Philadelphia.

The present volume of "Progressive Medicine" carries out all of the accumulated promises of the former volumes. The sections on Surgery and on Pathology we believe to be most noteworthy; that on Pathology especially conforms more truly to the reviewer's ideal of that which is of paramount importance in its special field. The author has fully grasped the general theme on which a work of this kind is constructed and has intelligently worked over the mass of material to make it of value to the reader.

In treatises of this nature it is, we believe, essential to epitomize, as it were, the earlier chapters in the story and thus present to the reader the preliminary ground in a short, terse manner and then tell the tale of recent advance, else a quarterly digest is a hodgepodge of abstracts, arranged even at their best. For the most part the contributors to "Progressive Medicine" have done their work well and conscientiously. It is to be hoped that they will continue as promisingly.

Text-Book of Anatomy and Physiology for Nurses. Compiled by Diana Clifford Kimber, Assistant Superintendent, New York City Training School, Blackwells Island, N. Y. The MacMillan Company, New York.

This is an excellent small manual, but we believe that the trained nurse who does not know more than this book contains relative to the subject of anatomy or physiology would be very illy prepared for her important life-work. Apart from this superficial view of the two subjects the work is very admirable.

Nothnagel's Encyclopedia of Practical Medicine. Variola, Vaccination, Varicella, Cholera, Erysipelas, Whooping-cough, Hay-fever. By H. Immermann, Th. von Jurgensen, C. Liebermeister, H. Lenhartz, G. Sticker. Edited with additions by John W. Moore, M.D., F.R.C.P., Professor of the Practice of Medicine in the Royal College of Surgeons in Ireland. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. W. B. Saunders & Co., Philadelphia and London.

The preeminence of this monumental system in its original tongue makes its translation an event of the greatest importance; and all of those concerned in its production in this form merit in the highest degree the gratitude of the English-speaking profession. The present volume represents the labors of a most eminent group of specialists whose names alone carry conviction and whose work has been done in a manner to make its perusal interesting and instructive in the extreme.

The lion's share of the volume, as might be expected, is devoted to variola and its congeners, vaccinia, varioloid and varicella, over 300 pages being allotted to their discussion. The introductory essay on the history of the disease and the closing one on antivaccination agitation are particularly good, the latter forming a most crushing arraignment of the whole motley crew of those obstructors of progress from the "conscientious objectors" to those who predict absolute physical and moral degeneracy for the entire race as the result of this salutary measure. In the author's closing words, "Again, vaccination fulfils the claims of a perfect prophylactic. . . . It is easily performed and its practice is dangerous to no one." Equally important is revaccination, which also should be made compulsory for the whole population.

The article on cholera is equally valuable and brings much information on a disease which our European confrères have had better opportunities of studying than, fortunately, has been our lot. The bibliography appended is very voluminous.

In considering the etiology of erysipelas Lenhartz concludes that specificity of a single germ is improbable and says at the close of a discussion of the pros and cons: "After all this we may accept as proved that the streptococcus can not only produce erysipelas and dependent internal suppurations, but also the primary pus-formation, whether or not it be followed by a true erysipelas; that a similar relation exists between puerperal fever and the coincident erysipelas; and, lastly, that general sepsis, which fortunately rarely follows or is accompanied by a true erysipelas, is due to the same streptococcus." The author after running the gamut of the extensive therapy recommended has abandoned internal medication almost entirely and relies mainly on soothing local applications and purely symptomatic treatment. The editor in a note ascribes the greatest value to the local and internal use of sodium salicylate in combination with quinine and terms it an "almost specific remedy."

The treatment of whooping-cough has called forth almost as many plans of therapy as the preceding disease, but Sticker says that the best that can be said of the so-called specifics is to hope that they may prove abortives; and of these quinine and camphor deserve most consideration.

The riddle of the etiology of hay-fever is still left unanswered by the same author, although he gives an exhaustive résumé of the possibilities; he also admits that in spite of the countless methods of treatment advocated we have not a single authentic record of a cure.

MINOR SURGERY AND BANDAGING. Including the Treatment of Fractures and Dislocations, the Ligation of Arteries, Excisions and Resections, Intestinal Anastomosis, Operations upon Nerves and Tendons, Tracheotomy, Intubation of the Larynx, etc. By HENRY R. WHARTON, M.D., Professor of Clinical Surgery in the Woman's Medical College of Pennsylvania, Surgeon to the Presbyterian Hospital, etc. Fifth Edition. Enlarged and thoroughly revised. Lea Brothers & Co., Philadelphia and New York.

THE popularity of this comprehensive little volume is well attested by the rapidity with which the successive editions have appeared. It presents the subjects indicated by its title in succinct but adequate form and is probably the most complete book of its kind that we have. The photographic illustrations of the various bandages described are a great advance over the conventional wood-cuts and are more helpful to the beginner because less schematic. Many of the fracture dressings are illustrated in the same way and are equally satisfactory. We are told that the book has been completely revised and brought up-to-date and a survey of the work seems to justify this assertion, for we find sections on such modern topics as X-ray burns, Laplace's intestinal forceps and spinal cocainization. Altogether we can give it nothing but praise and wish for it a continuance of the success it has already won and so richly deserves.

ATLAS AND EPITOME OF OPERATIVE SURGERY. By Dr. OTTO ZUCKERKANDL, Privatdocent in the University of Vienna. From the Second Revised and Enlarged German Edition. Edited by J. CHALMERS DACOSTA, M.D. W. B. Saunders & Co., Philadelphia and London.

THE excellence of the series of hand atlases, of which this volume is one of the most practically useful, has already become widely known. While it is true that operative surgery most imperatively demands actual practice before any degree of confidence or proficiency can be attained, still such a work as the present cannot but be of the greatest assistance to the student as a text-book and to the operator for reference. In the letter-press brief descriptions of the more important operations are given and these are elucidated to an unusual degree by the many cuts and colored plates. The latter are especially deserving of praise, and even in this age of cheap book-making one cannot but marvel that their production at the very moderate price of the volume should be possible. The sections devoted to the ligation of arteries and amputations are perhaps the most practically useful, and in these the cutaneous incisions and relations of the vessels are shown in a manner second only to demonstration on the cadaver.

The translation has been accurately and smoothly done, though an occasional Teutonism, such as "preternatural anus" and "ectopy of the bladder," creeps in and sounds strangely to American ears.

THERAPEUTIC HINTS.

Lupus Treated by X-rays.—A young woman came to Canada to try change of climate for lupus of the face. G. P. GIRDWOOD (Montreal Medical Journal, May, 1902) began treating her with X-rays, giving eight sittings of eight minutes each on alternate days. After an interval, he substituted high currency for the X-rays for twenty-seven days. The improvement was most marked, but there was a brown discoloration of the scar. The author would not express an opinion as to the relative efficiency of X-rays and high currency.

Anorexia in Tuberculosis.—

℞ Pulv. condurango
Sodii bicarb. aa............gm. 10.0 (ʒiiss)

M. Div. in 20 cachets. One an hour before each meal. Or:

℞ Tinct. condurango
Tinct. cinchonæ aa............c.c. 30.0 (℥i)

M. Sig.: One teaspoonful three times a day before meals in water or infusion of melissa.—DEBOVE ET GOURIN in Le Progrès Médical, May 31, 1902.

Mercury Cyanide in Syphilis.—The free use of cyanide of mercury subcutaneously or intravenously in severe forms of syphilis is strongly urged by JEHIN-PRUME (Montreal Medical Journal, May, 1902). He cites several cases so treated with marked success when routine treatment with pills and ointments had failed.

Hemorrhoids.—Of the symptomatic remedies for external and mixed hemorrhoids the first is the toilet of the anus. The patient must keep the region absolutely clean, after every defecation washing the anus and the hemorrhoids with absorbent cotton dipped in boric acid solution, or, better, a solution of tannic acid, a teaspoonful to a quart. Cold antiseptic or astringent washes are very agreeable. Neurasthenic patients should not be given too much to do locally, or they may be found examining their anus at every convenient hour by mirrors and reflectors.—I. BOAS in "Diseases of the Intestines."

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ORIGINAL ARTICLES.

A FEW NOTES ON SYPHILITIC BUBO.

BY A. RAVOGLI, M.D.,

OF CINCINNATI.

THE lymphatic glands, which are placed on the route of the lymphatic vessels, form a kind of chain representing a defense of Nature against pathogenic agents. When micro-organisms attempt to enter through the skin or the mucous membranes, they are taken up by the lymphatic vessels and directly carried to the lymphatic glands, where they are disposed of either temporarily or finally.

These glands, although considered to be of a complex structure, are simple in their constitution. A capsular membrane of connective tissue forms the basal texture, much tighter and more closed than the ordinary connective tissue, and according to Koelliker it contains some fine elastic elements. The capsule is traversed by lymphatic and blood-vessels, some entering and some going out of the gland, vasa inferentia and efferentia. The lymphatic vessels entering from different points into the gland open into a system of lacunæ, from which in the form of canals, other vessels have their origin, which leave the organ through the hilum. This cavitary system, which represents the lymphatic current of His, is surrounded by arteries and veins. They are not a simple anastomosis of convoluted and looped vessels, but consist of an aggregation of anastomosing cells into which the vasa afferentia open and from which the vasa efferentia proceed. In the lymphatic glands there is a special glandular element, and not simple plexuses of lymphatic vessels. In fact, from the walls of the blood-vessels start a quantity of small fasciculi of connective-tissue fibers, which, subdividing themselves, are anastomosed with those nearest, forming a kind of network with thin trabeculæ spread in every direction.

In the normal condition of the glands the connective-tissue fibers do not show nuclei in their interior, but are covered with endothelial cells, like those which are found in the grand epiploon. These fibers, so protected with endothelial cells, form the interior of the cavities of the gland. These cavities are constantly filled up with lymph extremely rich in white-blood corpuscles. They are neatly limited by connective-tissue bundles containing blood-vessels which separate and limit the lymph spaces, forming a kind of spongy tissue resembling that of the spleen. Cornil and Ranvier[1] injected a mixture of carmine in water into the subcutaneous tissues surrounding the sciatic nerve of the leg of a rabbit. After forty-eight hours the animal was killed and the lymphatic vessels were found to contain red granules, and so the lumbar lymphatic glands were colored with carmine in their cavities, leaving the limiting funicular bundles entirely white. The coloring granules were contained in the lymphatic cells and also in the endothelial cells which plaster the surface of the trabeculæ. Koelliker also found it impossible to fill lymphatic vessels in the interior of the lymphatic glands by means of injection. The injection fluid colored only the ramifications of the vasa afferentia upon the gland, or when it was pushed further it entered the alveoli according to their position. In this way it showed that there exists no direct connection between the afferent and the efferent lymphatics, leaving the alveoli as a special modifying part of the gland. As a consequence the lymph is poured into the alveoli, flows through them in finely-divided streams among their elements, where their contents are composed and elaborated. The alveoli of the lymphatic glands have as their function the task of inducing a metamorphosis and changes in the lymphatic fluid, flowing through them under the influence of the cells in their pulp, which are in a continual process of development. This is also proved by the fact that the lymph is richer in corpuscular elements after its passage through the glands.

The afferent lymphatic vessels enter into the cavity of the gland by different points and the efferent vessels go out through the hilum of the gland together with arteries and veins. The lymphatic vessels retain all their tunics up to the gland, but on entering the gland they lose the muscular membrane and enter the alveoli as a loose structure resulting only from connective tissue and from elastic fibers covered with epithelium. In frogs the lymphatic glands are not found, but in their place the lymphatic vessels form sacs in their course, covered with an abundant epithelium. In mammals, however, the circulation of the lymph in the glands is much more complex.

The chief function of the lymphatic glands is the formation of lymph corpuscles. In fact, the afferent lymphatic vessels have a lymph much poorer in corpusculated elements than the efferent vessels. The importance of the lymphatic glands in the process of blood-formation was confirmed when Virchow gave to the world his immortal treatise on leucemia, and showed that in many cases the increase of the colorless elements of the blood was only a coincidence of an hypertrophy of the lymphatic glands.

The following important function was recognized by Brücke, Donders and Koelliker: Elements of the lymphatic glands go into the lymph, which may be formed by the cortical substance or by the medulla of the gland. In the alveoli surrounded by the cortex with their peculiar anatomical arrangements, the entering lymph is placed in intimate contact with abundant blood-vessels. The blood is subjected to a much greater pressure than the lymph, and in consequence many constituents of the blood will pass into the lymphatic lacunæ and mingle with the lymph. The lymph in the lacunæ moves slowly and consequently has every opportunity for the formation of cells.

Indeed, according to Koelliker, the exudation from the blood-vessels plays a much more important part than the slow movement of the liquid itself. The lymph from the vessels which has not gone through the glands is poor in corpuscles, and so the lymph of those vertebrate animals which possess only a few isolated lymphatic glands or none at all is very poor in cells. This shows that the lymph by itself is incapable of organization, and the formation of colorless cells in the lymphatic glands is chiefly dependent upon the transuding constituents of the blood. As a consequence the lymphatic glands are not merely plexuses of lymphatic vessels, but are organs in which the lymph is elaborated.

Furthermore, the fine trabeculæ of the lymphatic glands form the most delicate and complex kind of a filter, which prevents the passage of obnoxious germs from the afferent vessels to the efferent vasal system. It is quite natural that when pathogenic organisms have found their way into the lymphatic vessels they are carried by the lymph to the lymphatic glands. In them three final results take place. If the microbes be not virulent, the leucocytes rush up and soon destroy them without further disturbance; if the microbes be capable of a pathogenic action, then a struggle takes place, liquids are exuded, leucocytes come out of the blood-vessels, a local inflammatory process results, blocking the progress of the lymph in order to limit and circumscribe the infection. When the microbes are very virulent, the organism is unable to cope with them, the lymphocytes which try to approach the virulent germs are repelled by the secretion furnished with the power of negative chemiotaxis, and so they are allowed to pass and cause general infection.

In fact, in the course of different infections, acute, subacute or chronic inflammations and suppurations, in cases of anthrax, tuberculosis, carcinoma and syphilis, the lymphatic ganglia are swollen in the region corresponding to the first place infected. Observations show that changes take place in them somewhat analogous to those occurring at the point of infection by an enormous multiplication of cells, which causes the swelling and the induration of the ganglia.

Although the studies investigating the nature of the syphilitic virus have been so assiduously carried on in late years as to give us a large literature on the subject, and though we are convinced of the bacillary nature of this virus, the bacillus has not yet been definitely demonstrated. From Donné, 1837, to Lastorfer, 1872, and from Lastorfer to Lustgarten, 1884, Taguchi, 1885, Fordyce, 1893, and Jullien, 1901, there has been published a continuous series of articles claiming the discovery of the syphilis bacillus, but science has not yet spoken the last word and the question still *sub judice pendet.* When the bacillus syphilis with its biological changes shall be clear, we will be able to understand this protean disease of which a great many points still remain obscure.

The syphilitic virus when inoculated in an abrasion of the epithelium of the mucosa or of the skin finds its abode in the place where it has found its entrance. There the bacillus is developed and multiplied, it proliferates, as in a culture, and when ripe forms the hard chancre. At the same time either the bacilli or their toxins go through the lymphatic vessels, reaching the lymphatic glands, which swell up and become hardened, showing a mild insufficient reaction, which in ordinary cases does not reach the degree of a true inflammatory process.

This condition of swelling and hardening of the lymphatic glands in the vicinity of the developed chancre is called syphilitic bubo. It has nothing to do with the gummatous infiltration which is a production of a late syphilis. The induration of the lymphatic glands from a developing syphilitic infection does not remain limited to the inguinal glands, or to the glands near the place of infection, but affects the whole system of these glands in the secondary period. As the syphilitic infection is frequently found on the genitals, so the enlargement of the glands is found in the inguinal region and is therefore called syphilitic bubo.

This glandular enlargement is sluggish and is unaccompanied by pain, heat, redness or edematous condition of the surrounding skin. Several glands are involved, so that we can feel with the fingers the row of inguinal glands lying along the line of Poupart's ligament, and sometimes the supracrural are also involved. Each gland can be separately felt as a hard, round, sharply-defined nodule, sometimes movable under the skin. In the beginning of the infection the adenopathy is most prominent on the side corresponding to the initial lesion, but it is soon found equally spread on the other side. Syphilis does not produce pus and as a consequence the glands do not undergo suppuration, one of the characteristics of the syphilitic bubo. In some cases, however, there is suppuration, but this is only incidental from mixed infection. In this case there is an absorption of the pus-generating germs by the chancre and we have a simple suppurating bubo, or there is present a mixed infection resulting from a chancroid and a hard chancre, and in this case we have the virulent bubo. But these are only incidental and are out of our subject.

The lymphatic glands are affected by the syphilitic virus constantly, and their engorgement is not due to the presence of the secondary eruption or to the abraded patches, as they are enlarged without these manifestations. In fact, the glands are enlarged before any eruption has yet appeared. Zeissler[2] referred to two cases of unmistakable syphilis without any cutaneous manifestations sufficiently clear on account of the chancre, the generalized lymphatic adenopathy and the alopecia. In hereditary syphilis we find the engorgement and hardness of the lymphatic glands in newborn children, although no eruptions of any kind are present. The inguinal glands constituting the syphilitic bubo attain in ordinary cases the size of a hazelnut, sometimes becoming even larger. They are easily felt in individuals with scanty panniculus adiposus, but in those in whom it is abundant the glands are not easily felt. Although they are painless, a disagreeable sensation is often produced by pressure. They remain in this condition during the whole secondary stage of the disease, and then gradually terminate in resolution, leaving, however some hardening of the glands which remains for many years.

Many are of the opinion that the lymphatic glands retain the syphilitic virus, where it remains latent and from them is at times distributed into the general system, causing relapses. It is a very plausible theory, but so far we have no testimony whatever to support these views. The lymphatic adenopathy has been made responsible by Stoukovenkoff[3] for the leucocytosis which has been found in the blood of syphilitic patients.

Pathology.—The process affecting the glands is an irritative one and in consequence hyperemia and swelling are the necessary results. The swelling occurs from an increased flow of serum from the blood-vessels, causing an enlargement of the follicles of the glands. Virchow has given a classical description of these glands in the following terms: Some of the inguinal glands are of the size of a plum, whitish externally; others are of a bright reddish color, presenting in sections numerous caseous foci, of the size of a cherry-pit or smaller; some of the latter are white and dry; others are of pasty consistence. In my experience with syphilitic glands I have found the parenchyma of the glands always well preserved, of a reddish-white color, without caseous foci or cirrhotic points. The capsule of the glands is somewhat thickened, as is also the connective tissue forming the trabeculæ.

Under the microscope (Oc. No. ⅔) specimens usually show the capsule forming the envelopment of the gland enlarged and thickened. The connective-tissue fibers, which make the stroma of it, are enlarged and show large connective tissue corpuscles containing large nuclei. In the same way the elastic fibers which are mingled with the connective tissues are greatly enlarged. Between the fibers there is some infiltration, a quantity of small mononuclear leucocytes are scattered between the connective tissue's elements, showing a true exudation. These small lymphocytes are more abundant around the blood-vessels, which show the infiltration in and about their tunics. The blood-vessels are decidedly enlarged and so are the cells of the endothelium, already giving that peculiar appearance of an early endarteritis. The abundant blood-vessels in the sepiments of the gland show it to be also enlarged, the elements comprising the tunics enlarged and surrounded by a large quantity of infiltration cells. The lymphatic vessels are not exempt from this condition in which the other vessels are found; their walls, although thin, are surrounded by abundant infiltrating cells and their endothelial cells are enlarged and loose. The pathological alterations of most importance are found in the follicle of the gland, which is enlarged and hypertrophic. The connective tissue forming its stroma is thickly infiltrated with small cells. To this process the connective-tissue fibers are not entirely strange, as they are enlarged and proliferating and their connective tissue-corpuscles are greatly enlarged and contain many nuclei. The alveolar structure is enlarged and the lymphatic spaces are filled with an immense quantity of mononuclear leucocytes. The lymphocytes are well preserved and with the exception of the connective-tissue corpuscles of the sepiments there are no giant cells, nor mast cells, showing a tendency to degeneration. They are the ordinary lymphocytes which are found normally in the lymphatic glands, where very probably they are formed.

These pathological alterations are entirely in contrast with those found in the suppurating adenitis of chancroidal origin. In the inflamed glands the infiltration is found only in the cavitary system of the gland, and it is composed of multinuclear leucocytes. In many points they are degenerated in foci and are replaced by pus-cells.

The lesions of the blood-vessels which enter in the follicle of the lymphatic glands are identical with those which we find in the initial sclerosis, in which we find the walls of the blood-vessels thickened and infiltrated. The infiltration which is found around the connective tissues forming the follicle of the gland is identical with that which is found among the fibers forming the stroma of the skin.

Furthermore, this process is different from that which we find in syphilitic gumma. In the gumma the infiltration is homogeneous with the giant cells in the middle and mast cells; in several places there are cells in complete degeneration.

From the pathological alterations we can see that syphilitic bubo is not a genuine inflammatory process of the inguinal gland, but is produced by the same infiltrating process which is the characteristic of syphilis. It is a process especially affecting the vascular system, with an enlargement and thickening of their tunics. The lymphatic vessels are also implicated in the same process, and the delicate structure of their tunics and the enlargement of the lymphatic spaces show prominently the alterations. The hypertrophic condition of the follicle of the lymphatic glands and the large quantity of lymphocytes in the cavitary system of the gland may be an explanation of the condition of the blood in the syphilitic patients.

We find that syphilis produces a decided effect on the blood in the form of leucocytosis.[4] Stoukovenkoff, Biegaski and d'Amore established the fact that under the influence of the poison of syphilis there is a rapid decrease in the proportion of hemoglobin as well as in the number of red blood-corpuscles, and parallel with this an increase in the white blood-elements, especially of the lymphocytes.

Ernest Becker[5] made the object of his study the morphological conditions of the blood in syphilis in order to determine the quantity of erythrocytes and leucocytes. In two cases with roseola and general adenopathy he found a marked leucocytosis with predominance of the lymphocytes. The relation of the polynuclear to the lymphocytes was 65:30, representing in a cubic millimeter 3,000 lymphocytes instead of the normal 1,200 to 1,500. These observations confirm the theory of Virchow, *i. e.*, that in syphilis the general swelling of the glands goes together with the lymphocytosis. In a patient affected with initial sclerosis without constitutional symptoms, the blood was found in a normal condition.

From these observations and from the results of my researches in the histopathology of the syphilitic bubo, I would arrive at the conclusion that the alterations of the lymphatic glands are the cause of the leucocytosis in syphilis. The hypertrophy of the connective tissues forming the follicle of the gland together with the hypertrophic condition of the blood-vessels induced by the syphilitic virus prevents greater elaboration of the white elements of the blood, which in a large quantity remain accumulated in the alveoli as mononuclear lymphocytes. The swelling of the lymphatic gland is not from a genuine inflammatory process, but from a hyperplastic process representing that which we find in the tissues affected with initial sclerosis. The accumulation of the lymphocytes in the cavitary system of the gland is not the result of an active exudation, but rather of a passive exudation on account of the difficulty which the lymphatic elements find in going through the affected glandular tissue.

From my observations I am of the opinion that syphilis affects the lymphatic system and the blood-vessels, since we find the most perceptible alterations about the blood- and lymph-vessels. In this regard, however, we must see that the lymphatics, being of so delicate a structure, cannot show the same alterations as do the blood-vessels, and therefore they are the channels best adapted to carry the syphilitic germs.

In the foregoing considerations we have seen that the lymphatic glands are to be considered as organs of protection, to stop the progress of invading infectious elements. Augagneur[6] has advanced the theory that the lymphatic glands, when active in their functions, with their phagocytic power must modify the infectious elements, and in consequence an intense adenopathy would be a favorable symptom in syphilis, showing the defensive power of the organism. Landouzy and Labbé[7] maintained that the lymphatic glands have to be considered as organs capable of hindering the progress of those bacteria which have escaped the bactericidal action of the leucocytes and of the endothelial cells, as a second center for the phagocytosis. According to those authors, the volume of the glands would be the result of the resistance of the organism rather than of the result of the gravity of the disease. For Labbé and Landouzy the absence of the enlarged glands in syphilis would mean a bad prognosis, showing insufficience of the protecting action of the lymphatic organs.

Tommaso De Amicis,[8] in his invaluable article "Sul preteso potere difensivo fagocitico del ganglii linfatici contro il virus sifilitico e valore semiologico che spetta alle diverse adenopatie nella sifilide," stated that the opinion of the two authors referred to is entirely against clinical observations. The fact shows that great enlargement of the lymphatic glands usually accompanies cases of grave syphilis. Mild cases of syphilis show very mild adenopathy, so that sometimes we remain in doubt in the diagnosis if other symptoms do not show the presence of syphilis.

In this case, as De Amicis says, we find that the phagocytic power of the lymphatic glands is no longer of any value against the syphilitic infection. Manfredi maintains that the parenchyma of the lymphatic glands offers a favorable dwelling place for virulent pathogenic bacteria, which may remain there for some time in a latent condition without losing any of their vitality.

Indeed, the white elements contained in the lymphatic glands are only lymphocytes, young lymphatic elements not yet formed, and, as Metschnikoff himself considers them, are deprived of phagocytic power. In consequence we can see that the lymph contained in the lymphatic glands, in the case of a negative chemiotaxis, offers rather a favorable culture medium for the life of virulent micro-organisms. In this way we come to explain how in these glands a latent microbism may occur and the syphilitic germs may remain there in a latent state, and at different intervals, in consequence of a weakened condition of the organism, they make their appearance again in different tissues and organs as syphilitic relapses. Virchow has already stated that the syphilitic infection is not a permanent dyscrasia in the blood, but that its chronicity is due to the persistence in the system of the morbid elements, which at times again find their way into the general circulation. He has also clearly stated that the lymphatic organs are the hiding-places of the infectious morbid elements.

In consequence, the lymphatic glands, which in certain infections are the true defenses of the organism from the invading bacteria, in other infections of a more virulent nature, are made incapable of reaction and they may contain in their structure the virulent bacteria. In this way we can explain how the lymphatic glands are made the store-rooms for the syphilitic virus. From pathological specimens I have shown that the adenopathy of the syphilitic inguinal glands is not of a reactive nature, but it is rather of a proliferating type. It is a repetition of the same infiltrating process which we have found in the initial sclerosis, which is especially perceptible in the tunics and around the blood-vessels. We cannot deny that the lymphatic glands are probably endeavoring to attenuate the virulence of the syphilitic germs, but they are made powerless to cope with a virulent element, and for this reason they undergo the same infiltrating and proliferating process as do the other organs without any characteristic reaction against the invading morbid elements.

Differential Diagnosis.—In cases of great enlargement of the lymphatic glands, we must not forget the possibility of other irritating causes, together with the presence of special individual conditions. In the group of glands enlarged by syphilis we always find one gland which is larger than the others, which corresponds to the anatomical gland of Ricord. Syphilitic bubo is indolent, but sometimes it may become active and inflammatory symptoms may develop if the initial sclerosis be contaminated with septic or with other pyogenic infection. In this case the pathological alterations are different from those which we have found in the true syphilitic bubo. In the inflammatory adenitis we find the pathological alterations more extended to the cavitary system of the gland, where the convolutions of the lymphatic canals have become perceptible, and the contents of the alveoli consist of polynuclear leucocytes, with foci full of detritus and pus cells. In regard to the general syphilitic adenopathy, we must point out that quite often in cases of excoriations of the lips, of eczema of the scalp, and of impetigo, we may find enlarged glands of the cervical region, which may sometimes give rise to the suspicion of an hereditary syphilis.

The syphilitic general adenopathy is independent of the eruptions of the skin and of the mucous membranes and appears long before any such manifestations have appeared, as already proved by the majority of the syphilologists. But we must also consider that the cutaneous eruptions, especially when excoriated, and the excoriated or ulcerated patches of the mucous membranes must have some influence in the adenopathy by furnishing infectious material to the lymphatics and through them to the glands. In these cases the intensity of the adenopathy is not entirely due to syphilis, but is due much more to a secondary bacterial infection. In fact, Fournier and Campana claim that the presence of mucous patches of the pharynx, abraded and ulcerated, covered with septic materials, is the cause of excessive swelling of the cervical lymphatic glands. Campana[9] has observed that in syphilitic individuals any common disease of the skin, such as scabies, eczema, etc., is liable to increase the swelling of the lymphatic glands of the groins, while in non-syphilitic cases it will not have any bad influence on these glands.

I must mention that the lymphatic glands are also affected with the syphilitic gummous process, *gummous lymphadenitis,* as proved by Virchow and confirmed by Verneuil, Lancereaux, Cornil, Jullien, Campana, Lustgarten, etc., which is different from syphilitic bubo.

In my service at the City Hospital I quite frequently came across enormous syphilitic buboes in individuals who have recently been affected with syphilis. I have selected a series of cases of recent infection with swollen glands of the groins, before any symptom of constitutional syphilis had appeared. In one case the initial sclerosis had already healed, but in two other cases it was removed at the time of removing the infiltrated glands. The wound healed promptly, and as a result of the removal of the glands the penis and the scrotum were affected with considerable edema on account of the disturbed course of the lymph. This edema after several weeks gradually disappeared. The patients, during the time they were in the hospital waiting for the healing of the surgical wound, did not show syphilitic constitutional symptoms and so were discharged. Two of them came back after six or eight weeks, one with a roseolar eruption, and the other with a maculopapular syphilide, which easily yielded to murcurial treatment. The delay in the appearance of the constitutional symptoms, if not their diminished intensity, must have been due to the removal of the hypertrophied glands. In this regard I agree with R. Matzenauer,[10] who stated that the possibility of avoiding general syphilitic infection by means of the total extirpation of the infected glands has not absolutely vanished.

The lymphatic glands after a period of from two to three years or more return to their normal size, but in a great many instances, when the general adenopathy has been very marked, they can be felt as small hard knots under the exploring fingers. The inguinal glands in particular, when they have been greatly enlarged, remain perceptible under the fingers as small hard granules during life. This is due to a sclerotic process, which takes place in the hypertrophied glands at the expense of the connective tissues forming the parenchyma of the gland.

One word more in reference to the treatment. Syphilitic bubo is indolent, without inflammatory reaction; in consequence there is no necessity for antiphlogistic treatment. As it is due to the syphilitic process, local mercurial applications are of great benefit. These can be made by rubbing on the groins the ordinary unguentum cinereum or by applying a piece of cloth on which emplastrum hydrargyri has been spread over the hypertrophied glands. In case of obstinacy of the syphilitic bubo, in order to obtain quicker results, we can inject a few drops of olei cinerei (gray oil) into the subcutaneous tissue around the glands, as already practised by Lang.

In conclusion we can say that syphilitic bubo will gradually disappear without surgical interference.

Note.—After my article had been read before the Research Society of Cincinnati, I have received a magnificent article from Dr. Louis Jullien,[11] to which I must refer, as it confirms my views. He, too, is opposed to the doctrine of Augagneur of Lyons, which, although partially supported by the observations of Haan and Cao and by his own, is nevertheless refuted by ordinary clinical observation and by laboratory experiments.

According to the last-named authors the conclusion was to preserve the lymphatic glands, because to remove one gland means the depriving of the system of one of its natural defenses, and when the system of the lymphatic glands has been previously attacked, as in scrofulous, tuberculous and leucemic subjects, treatment must be carried out in all its curative power as the system is deprived of its natural defense. But this concerns only the first infection in its progressive development, and does not regard in any way the following period of evolution of syphilis.

Jullien reiterates his views in regard to a few points: The inflammatory process in the glands is followed by inertness and impotency; the resources of the organ are exhausted, the rushing of the polynuclear either impeded or insufficient; there the infecting bacillus finds its place and there it dwells. He cites the cancerous process as an example of the lymphatic glands, after some reaction, becoming the abode of the cancerous process.

He finds that a great many micro-organisms, which in the general circulation would find their destruction, are maintained and proliferate in the ganglionic system where they find a culture medium propitious to their development. If the lymphatic glands offer the germs a good ground for development, they will offer also a good hiding-place for their preservation during the period of latency.

Jullien refers to the two surgeons who wounded themselves while performing an operation on a syphilitic patient. Both developed syphilis in form of a mild roseola, without the appearance of a chancre, which appeared after the thirtieth day. The infection in both cases was directly carried into the general circulation, without passing through the lymphatic channels. As a consequence the period of incubation was reduced to thirty days insteady of sixty-seven. The disease was very mild in its symptoms, showing that in the general circulation the syphilitic germs can be disposed of more easily than when passing into the lymphatic system.

Another argument is taken by Jullien from the mildness of the symptoms in the evolution of syphilis in old people, in whom the shrunken atrophic lymphatic glands have no longer any activity and offer no longer a propitious culture medium to the developing germs.

In my practice since writing the first article I have had occasion to remove enlarged syphilitic glands of the groin (syphilitic bubo) in several cases with satisfactory results in regard to the successful evolution of the constitutional symptoms of syphilis.

In one case, especially, in which the right inguinal glands were affected, I removed all the affected glands, one being the size of a plum. The patient came to my office on February 6th with a well-developed initial lesion of three weeks' duration, accompanied by adenopathy of both groins, one gland of the right side being greatly swollen and hard, but without pain or inflammatory symptoms. No result followed local applications of mercurial plaster, etc., so I removed the glands. In three weeks the wound had completely healed. On March 16th a few spots of roseola could be seen on the back and gluteal region; there were none on the front of the body. A mild pharyngeal erythema was the only other symptom. The roseola and pharyngeal erythema disappeared in twelve days under the use of gray oil injections. The patient is continuing in treatment, feels perfectly well, and with the exception of a mild enlargement of the cervical lymphatic glands, no syphilitic symptoms can be found.

Thus is confirmed the assertion of Virchow that the syphilitic germs are not preserved in the blood, but in the depth of the lymphatic system.

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TOBACCO HEART: WHAT IS IT AND WHAT ITS TREATMENT?

BY FRANK D. MAINE, M.D.,
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It seems befitting to seek the columns of your journal to answer the oft-repeated inquiry, "What is a tobacco-heart?" Before answering directly the interesting question, however, it were well to state a few facts relative both to the heart and to tobacco.

First, the heart, though not a unit in structure, is in composition largely of muscular tissue.

Second, its situation is within the left chest and the weight in an average-sized man is about nine ounces; in a woman of like physique, about eight ounces. Moreover, it is divided into four cavities; the two upper are known as auricles, the two lower as ventricles. By the alternate contraction and dilatation of these receptacles the blood, having been oxygenated in the lungs, is sent to all parts of the organism. Now the perfection by which this physiological function is accomplished depends upon the normal, vigorous condition of this "fountain of life."

Concerning tobacco it is authoritatively stated that, besides a variety of ingredients entering into its composition, "the chemical examination of a tobacco leaf shows its surface dotted with minute glands, which contain an oil, found in no other plant, the proportion of which being seven per cent. of the weight of the leaf." This oil is known as nicotine; and it is this alkaloid, the active principle of the plant, one of the subtlest of poisons, that, united with ammonia, ever more or less present, imparts the pungent odor and determines the strength of tobacco.

We are now prepared to speak of the toxic or poisonous effect of tobacco, its therapeutic action not to be considered in this connection. Nicotine, in a word, primarily lowers the circulation, quickens the respiration, and excites the muscular system; but its *ultimate* effect is general exhaustion. As administered even in the most minute doses, the results are alarming, and in a larger quantity will occasion a man's death in from two to five minutes.

"The effect on the heart," in the ordinary uses of tobacco-smoking and chewing, "is not caused by direct action, but rather by paralyzing the minute vessels which form the batteries, so to speak, of the nervous system. The heart, freed from their control, increases the rapidity of its strokes, with an apparent accession, but *real* waste of force."

The longest nerve emerging from the base of the brain, the pneumogastric, supplies with its numerous branches the motive power for the functional activity of lungs, heart and digestive apparatus, respectively. Tobacco acts injuriously upon this nerve throughout its extensive distribution, producing relaxation and paralysis more or less complete, in proportion to the degree and extent of its use, of the involuntary muscles, as applied to the vital organs just mentioned. Proof of this indirect invasion I have repeatedly observed in the congestive cough and dyspeptic symptoms, more or less manifest, seen in connection with a well-pronounced "tobacco heart." The characteristic signs of the latter are more than the rapidity of its strokes, nervous palpitation, and waste of vital force, to which I have referred, irritability being always present, and one of the most conspicuous effects is irregularity of the heart's normal, rhythmic pulsations. By the prolonged use of tobacco, hypertrophy or thickening of the left ventricle, or even of the entire heart, may obtain by the disturbed innervation and overaction of this organ.

The treatment is for the most part negative—total abstinence. Even disappearance of the hypertrophy, says Osler, may take place upon the discontinuance of the use of tobacco. This, together with a proper observance of the laws of hygiene, and occasional appropriate, internally administered, doses of strychnine, prescribed by a competent physician, may suffice for a complete recovery.

THE CHANGES OF THE LEUCOCYTES IN DISEASE AS AN AID TO DIAGNOSIS AND PROGNOSIS.*

BY THOMAS R. BROWN, M.D.,
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AMONG all the factors in the development of modern medicine, which have definitely placed it among the exact sciences and removed it from its former condition—a cosmos of inexact and empirical conclusions—none have been so potent as the application of laboratory methods to each and every problem presented. The pathological laboratory, the bacteriological laboratory, the laboratories of chemistry, of pharmacology, and of hygiene, have each done great service in this development. And yet not until a comparatively recent time has an attempt been made to extract the clinical essence, as it were, from these various storehouses of knowledge, and to turn to a purely clinical laboratory for a solution of those most practical and important problems—the diagnosis, the prognosis, and the treatment of disease.

The rapid opening of new lines of investigation and the ever-increasing number of methods of examination have now made this laboratory an indispensable adjuvant to the physician and surgeon. Among all the subdivisions of the subject, none is more important than that devoted to the study of the blood and its changes in health and disease. Yet this is not to be wondered at, when we consider the constitution of the blood and the multiplicity of its functions, to carry oxygen and food-stuffs to the tissues, to carry away the waste products of cellular metabolism to the lungs and the excretory organs, to act as a medium for the transmission of the internal secretions of various glands, to aid in equalizing the temperature and water contents of the body, to furnish the agents designed to destroy or remove invading bacteria and other foreign substances, and to furnish the substances out of which the pigments and many of the various secretions of the body are elaborated.

Indeed, the work upon the blood has been of such magnitude that division and subdivision have become necessary, so that now, broadly speaking, such work may be differentiated as follows:

(1) The study of the red blood-corpuscles and hemoglobin, of paramount importance to the physician in the diagnosis and prognosis of the primary and secondary anemias, of great aid to the surgeon in deciding for or against the advisability of operation, and extremely useful to the therapeutist in determining the value of various forms of treatment.

(2) The study of the leucocytes or white

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blood-corpuscles, to the value of which this article will devote itself exclusively.

(3) The study of the chemistry of the blood and the quantitative and qualitative study of the substances normally and abnormally present, an enormous field, waiting only for the development of methods of greater refinement in biochemistry to throw open to an eager band of explorers, in the hope of settling many of the unanswered questions regarding the normal functions of the body as well as its pathological variations.

(4) The relation of the blood to that broadest and most important question, serum diagnosis and immunity, made doubly interesting by the recent brilliant contributions to this subject by Ehrlich, Wasserman, and others.

That the subject of our discussion, the leucocyte, is an important cell in the animal economy seems probable from the fact that it is met with, as shown in Metchnikoff's brilliant studies, even in the very low forms of animal life where its functions and characteristics seem to be almost identical with those among the higher members of the animal kingdom. From Virchow's first description of the presence of an increase of these cells in various diseases and pathological conditions, their study has been a favorite one with both the pathologist and the clinician, and has been a great factor in giving us a clearer conception of various morbid processes.

The number normally present in human blood per cubic millimeter is given by various observers as from four thousand to ten thousand, while the proportion of the various forms of leucocytes (for, as is well known, the white blood-cells are not all of one kind but show several varieties) is given in the case of the small mononuclear leucocytes from fifteen to twenty-five per cent., the large mononuclear and transitional forms from four to eight per cent., the polymorphonuclear neutrophiles from sixty-five to eighty per cent. and the eosinophiles from one to five per cent. in the different tables. From a series of observations made by us upon fifty normal human beings, we concluded that the average normal number of leucocytes per c.mm. was six thousand five hundred, of which seventy-four per cent. should be polymorphonuclear neutrophiles, eighteen per cent. lymphocytes, six per cent. large mononuclear and transitional cells, and two per cent. eosinophiles.

Work done since the completion of this series has led us to suppose that the above figures give rather too high percentages in the case of the neutrophiles and eosinophiles and rather too low in the case of the lymphocytes. Before discussing the changes in the total number of the leucocytes or in the relative proportion of the various forms as an aid to diagnosis and prognosis, let us briefly sketch the various theories held regarding the seat and mode of origin of the various kinds, and the significance of leucocytosis, what it represents in its broadest sense and what it tells us as regards the condition of the hematopoietic centers and of the body as a whole.

Ehrlich, with whose name the study of the leucocytes will always be indissolubly connected, believes that the lymphocytes are formed in the lymph-glands, the neutrophiles and eosinophiles in the bone-marrow from preëxisting neutrophilic and eosinophilic cells, while the spleen is normally not an organ of hematogenesis, but rather of hematolysis.

Uskoff, on the other hand, believes that all the white blood-cells are derived from one form, the lymphocyte, the growth occurring mainly in the circulating blood, and Gulland, who has the same belief, adds that "the especial kind found in each locality depends upon the surroundings and conditions in which the cells live," a view to which Pfeiffer subscribes, opposing Ehrlich's ideas and basing his conclusions that the granulations are not specific upon his observations that the same granules may be present in different types of cell, and that different granules may be present in the same cell.

According to the recent work of Korokoff, on the other hand, the spleen plays the most important rôle in the origin of the lymphocytes, while Pappenheim believes that these cells are derived from preëxisting cells of similar character in the bone-marrow.

Hardy and Kanthack possess still different ideas on the subject, namely, that the different leucocytes are of distinctly different nature and take their origin in different parts of the body, the lymphocytes from the lymphoid tissues, the neutrophiles from the intestinal tract, and the eosinophiles from the serous membranes.

While some other views are held regarding the mode of origin of the various forms, the above theories will illustrate how widely different are the views held regarding this question, Ehrlich believing firmly in the specificity of the cell-granules and, *ipso facto,* in their distinctly separate mode of formation, while numerous observers believe that all the leucocytes are derived from one original cell, the lymphocyte.

Although there are some differences of opinion, yet there is much more unanimity regarding the function of the leucocytes and the significance of leucocytosis. The brilliant work of Metschnikoff followed by the observations of Büchner, Gabritschewsky and others, has shown beyond a doubt that one, and probably the most important function of the leucocytes, or at least of those forms present in the blood in largest amount, the neutrophiles, is one of phagocytosis, *i. e.,* the removal or destruction of bacterial, chemical or mechanical irritants, or the products of bacterial activity.

The discovery of a distinct bactericidal property of the serum by Hankin, Büchner, Behring, and others, has led to the development of a humoral in place of a phagocytic theory of immunity, but the demonstration that the bactericidal agent in serum, lymph, and exudates is a nucleoproteid derived from the leucocytes, has drawn these two theories of immunity closely together, and has accentuated the value of the leucocyte in the defense against disease-producing bacteria and toxins.

Hankin especially has insisted upon the secretion by the leucocytes, especially the eosinophiles, of an alexin, which is bactericidal, while Hahn, Van der Velde, and many others, have demonstrated that the alexins are the secretory products of the leucocytes, especially the neutrophilic cells. As to the function of the lymphocytes, according to Ehrlich, although not to all observers, this form of leucocytosis is passive, *i. e.,* not due to the influence of chemotactic substances, and probably is of little or no importance in phagocytosis.

Besides their most important rôle, one of defense, the leucocytes are undoubtedly important factors in the resorption of the products of cellular destruction and necrosis, in transforming these products and in aiding their elimination, while possibly they play an active rôle in nutrition and may be regarded as cells filled with what may be called an alimentary reserve.

In discussing leucocytosis, it is essential to first draw the distinction between the physiological and pathological type, and then to discuss the different varieties of the latter.

The physiological leucocytosis is met with during the digestion of foodstuffs, in pregnancy, at least in the case of the primiparous, in the new-born, after cold baths and violent exercise (in the last two-mentioned conditions, this is more apparent than real and is probably due to vasomotor phenomena and an unequal distribution of the leucocytes in central and peripheral circulation). Clinically, the digestive leucocytosis is of importance because its absence is indicative of some disorder characterized by distinct pathological changes in the gastro-intestinal tract, although it is not, as originally supposed, pathognomonic of gastric carcinoma, while the leucocytosis of pregnancy and of infancy should be remembered to prevent a misinterpretation of blood-findings in these conditions.

A practical point in connection with physiological leucocytosis is that it teaches us that the blood should never be examined for pathological changes during the height of digestion, but rather on a fasting stomach when the degree of leucocytosis will be a criterion of one factor alone and not of a combination of two factors, one physiological and one pathological.

The subject, pathological leucocytosis and the aid derived from it in our conception of the nature and treatment of disease, is so large that it will be possible here only to touch upon the more important findings in the field. As we have different forms of white blood-cells, so we have different forms of pathological leucocytosis according to which of these forms is increased; thus we may have (1) the common or polymorphonuclear neutrophilic leucocytosis, the condition met with in most infectious diseases and inflammatory conditions; (2) eosinophilia or eosinophilic leucocytosis, a rarer but no less interesting condition, met with regularly in various diseases of the skin, in bronchial asthma and myelogenous leucemia, and various diseases due to intestinal parasites, besides being met with occasionally in a variety of other conditions; (3) lymphocytosis, the passive leucocytosis of Ehrlich, the condition met with normally in childhood and present in various morbid processes associated with diseased conditions of the lymphatic apparatus and in a few of the acute infectious diseases, as whooping-cough and typhoid fever.

The opposite condition, a diminished number of leucocytes, a leucopenia or hypoleucocytosis, is met with regularly in certain diseases and is of no less value in determining diagnosis and prognosis. Whether this condition is due to the presence of substances possessing the property of negative chemotaxis, or whether a slowness and insufficiency of leucocytic production or unequal leucocytic distribution is the cause, it is impossible to say at the present moment. The work of Bohland on the effect of typhoid toxins upon the leucocytes, however, seems to show that in some cases at least the first theory is tenable.

Let us consider now, briefly, the important diseases in which the changes in the leucocytes are of aid in diagnosis and prognosis, going first into the field of internal medicine, then into that of surgery. Obviously, the field is so vast that we will here be able merely to touch upon many phenomena the importance of which would in reality justify a much more exhaustive consideration.

Although in the anemias we devote most attention to the study of the red corpuscles, yet in determining the prognosis in the severe cases valuable signs are to be derived from the character of the leucocytes, a diminution of leucocytes below normal and a relative increase of the small mononuclears being bad prognostic signs. Let us briefly cite two cases in point, both seen at about the same time, both in practically the same condition, and both suffering from the same disease, pernicious anemia. The red-blood and hemoglobin counts were practically the same in each, but one showed numbers of megaloblasts and only between two thousand and three thousand leucocytes per c.mm., the other very few megaloblasts and between seven thousand and eight thousand leucocytes; the former patient died in less than a week, the latter recovered from that attack and did not die until three years later, from a recurrence of the condition, and this time the blood picture was practically the same as in the first case, *i. e.,* many megaloblasts and marked leucopenia.

In the case of the acute infectious diseases, the greatest aid from leucocyte counting has come in typhoid and malarial fevers, tuberculosis, influenza, whooping-cough, measles, scarlet fever, diphtheria, and pneumonia.

The presence of a diminished number of leucocytes in a case characterized by a persistent fever is of the greatest aid in differentiating typhoid fever, especially in the early stages of the disease, before the Widal reaction is obtainable, from central pneumonia, appendicitis, and various inflammatory and suppurative processes, all of which are characterized by a marked leucocytosis. So many cases of suppurating ovarian cyst, pyosalpinx and other conditions characterized by persistent fever have been mistaken for typhoid fever that a blood examination, if only the examination of a freshly prepared slide, should always be made in every case of such nature, when the presence of a leucocytosis will exclude typhoid fever. Naegeli, in a recent contribution of great value, gives the results of his studies on the leucocytic changes in the various stages of typhoid fever, from which he concludes that favorable prognostic indications are the early appearance of the eosinophiles, the moderate diminution of the polymorphonuclear neutrophiles, and the extreme increase of the lymphocytes. The presence of leucocytosis in typhoid fever points at once to some complication, often a perforation, and in the asthenic cases, in which symptoms are slight, due to the intense toxemia, this may be the only means of diagnosing such a condition, and, *ipso facto,* operating, and very possibly saving the patient's life. This point cannot be too strongly insisted upon, for the only hope of preventing typhoid perforations from terminating fatally lies in a rapidly reached diagnosis and immediate operation.

In malaria, a diminution of leucocytes is regularly met with, and, unless the parasite be found, even the most typical case from the clinical standpoint should not be so diagnosed in the presence of a leucocytosis, as occasionally cases of pyosalpinx and other supurative conditions with an absolutely regularly intermittent temperature are met with, and here the presence of a leucocytosis is of the greatest aid.

The absence of a leucocytosis in cases of influenza, and the distinct diminution in the cases of the abdominal type of the disease are of value in arriving at a differential diagnosis; for in the ordinary form of the disease, in the catarrhal stage, the absence of leucocytosis may serve to differentiate it from whooping-cough, in which a leucocytosis of from fifteen to twenty-five thousand per mm. is present, with a marked relative increase of the lymphocytes, as shown by Frölich and Meunier and De Amicis and Pacchioni. Our own observations in five cases of the former disease in which we have examined the blood are entirely confirmatory of these results, while in the past year, during an epidemic of whooping-cough, the absence of a leucocytosis has made us diagnose as influenza two cases which clinically presented all the signs of the catarrhal stage of pertussis, a diagnosis which was borne out by the future conduct of the cases. In the abdominal type of influenza the distinct decrease of leucocytes is of value in differentiating the condition from appendicitis, a problem of no slight difficulty in the case of very young children.

In the case of the early diagnosis of scarlet fever and measles the presence of a leucocytosis is significant of the former, of a leucopenia of the latter disease; while prognostically in scarlet fever the presence of a distinct eosinophilia beginning on the second or third day and reaching from eight to fifteen per cent. in the second or third week is a favorable import prognostically. These results of Kotschetkoff have been confirmed by us in four cases, all of which recovered and all of which showed an eosinophilia of over six per cent.

In diphtheria, Engel regards a high percentage of myelocytes as an unfavorable sign, while Besredka believes that if one or two days after the injection of the antitoxin the percentage of polymorphonuclear neutrophiles is sixty or more, the prognosis is good; with a higher temperature and fifty per cent., the prognosis is bad; while, if below fifty per cent., the prognosis is fatal.

The absence of a leucocytosis in uncomplicated tuberculosis is of value, in the first place, in differentiating tuberculosis from other inflammations of various organs and tissues characterized by an identical train of symptoms, while the appearance of a leucocytosis in tuberculous cases points at once to there being a secondary infection with pyogenic micro-organisms, which may be of the greatest value in determining upon immediate operation, in the bone and joint cases especially.

The presence of the characteristic leucocytic picture in the case of lymphatic and splenomyelogenous leucemia gives us the only exact method of diagnosing these cases from tuberculous or syphilitic adenitis, Hodgkin's disease or sarcomatosis of the lymph gland on the one hand, and on the other, from Banti's disease, chronic malaria with enlarged spleen, tuberculous, syphilitic, or malignant growths of the spleen, hydronephrosis or renal or ovarian neoplasms. We well remember one case sent to the Johns Hopkins Hospital to be operated upon for a large ovarian cyst, where an examination of the blood at once showed it to be a case of splenomyelogenous leucemia, in which, obviously, a very different mode of treatment is to be employed.

There is not time for us to touch here upon the work of Löwit in regard to his supposed intra- and extraleucocytic protozoa of leucemia, but the work of Türk and others throws grave doubt upon Löwit's conclusions.

As to the prognosis in leucemia, Taylor describes marked degenerative changes in the leucocytes toward the end of the disease, while Rosenfeld, from a careful clinical and pathological study of three cases, thinks that in lymphatic leucemia, the large mononuclears appear when the bone-marrow is affected, a lymphadenoid degeneration taking place; and when such a blood picture is found, it means that the disease is rapidly leading to a fatal termination.

The presence of a marked increase of eosinophiles in the blood will serve to differentiate bronchial from renal or cardiac asthma. The greatest value of the leucocyte counting in pneumonia is that by its grade we learn something of the severity of the process, while if the leucocytes do not descend to normal with the drop in temperature, we know that the condition is one of pseudocrisis and not a true crisis. In this disease, as in practically all other conditions usually associated with a leucocytosis, the presence of a leucopenia is the most unfavorable of signs, as it points to an absolute lack of reactive tendency on the part of the organism, and is almost invariably associated with a fatal issue.

Very interesting in this connection and also in connection with chemotaxis is the recent work of Bentvegna and Carin, who found that after doses of arsenic, iodine, and bichloride of mercury which were not fatal, a marked leucocytosis was found, while in the fatal cases a diminution of leucocytes occurred and with this a diminution in the bactericidal powers of the blood. This is of especial interest because it shows that chemotactic powers may be possessed by simple inorganic chemicals as well as by the complicated toxins of bacterial and cellular activity.

The constant presence of a mild grade of leucocytosis after ether anesthesia and of a slight decrease in the number of leucocytes after chloroform anesthesia (Benassi) is of especial interest to the surgeon. Among other cases of toxic leucocytosis, may be mentioned that due to various drugs, as several of the coal tar remedies.

We have but recently seen a case of severe acetanilid poisoning in a young girl who took the drug secretly, in which the leucocytes reached thirty thousand per c.mm., twelve per cent. of which were eosinophiles; undoubtedly further study along this line may prove of great aid in diagnosing various forms of secret drug habits.

Among the most interesting diseases with which the blood changes are associated may be mentioned those due to animal parasites, especially those invading the intestinal canal. The presence of an increasing number of cases of anchylostomiasis in the United States and the probability that many more of similar nature will be met with among the soldiers returning from the Philippines should lead us to make a most careful examination of the stools in all cases of progressive anemia associated with marked eosinophilia; while, we think, the diagnosis of trichinosis can now be made even in the most sporadic and atypical of cases by the remarkable increase of the eosinophile cells in this disease.

Since our original report in the *Johns Hopkins Hospital Bulletin,* April, 1897, of the presence of a marked eosinophilia in trichinosis and the diagnostic value of this blood phenomenon, especially in differentiating this disease from other diseases associated with gastro-intestinal or muscular symptoms, numerous observations have been reported, all tending to substantiate this view. We reported three additional cases (*Journal of Experimental Medicine,* 1898, III, No. 3, and MEDICAL NEWS, 1899, January 7), all of which showed from forty to sixty-eight per cent. of eosinophiles in the circulating blood, and trichinæ in the muscle, of which a small portion was removed in each case for examination.

Atkinson (*Philadelphia Medical Journal,* June 3, 1899) reports a case substantiated by muscle examination, in which the marked eosinophilia led to the diagnosis being made, while Blumer and Newman (*American Journal of the Medical Sciences,* January, 1900) report a family outbreak of the disease in which nine persons were affected, and where the symptoms markedly resembled those of typhoid fever. The diagnosis was made from the blood examination, which showed a leucocytosis, with a great increase of the eosinophiles, while trichinæ were found in excised portions of the muscle. Stump (*Philadelphia Medical Journal,* June 17, 1899) reports three cases diagnosed by the marked eosinophilia, and Kerr (*Philadelphia Medical Journal,* August 25, 1900) reports two cases, in one of which the diagnosis was not even suggested until after the blood examination. The leucocytosis in each of Kerr's cases reached twenty-five thousand, while the eosinophiles reached the remarkably high percentage of 68.7 per cent. and 86.6 per cent.

Gwyn (*Centralblatt für Bakteriologie,* 1899, XXV., p. 746) reported a case diagnosed by the marked eosinophilia and recently Gordinier (MEDICAL NEWS, December 22, 1900) has reported two cases in which the diagnosis was made by this means, and in which he gives a careful review of the literature of the subject. As to the mode of origin of the eosinophiles in these cases, the views of the different observers differ somewhat, we believing that they may possibly be derived from the neutrophiles, the transition taking place in the affected portions of the muscle, while Howard believes that they are derived from the plasma cells, which, in turn, are probably derived from the large mononuclears. Kerr, from a careful study of his two cases, differs from Howard and is opposed to the view that they are derived from the large mononuclears.

A very recent observation by Courmont, that there is a distinct leucocytosis of the neutrophilic type, these cells often reaching ninety-five per cent., in all cases of rabies, seems liable to prove of great value in determining whether or not a suspected animal is affected with this disease. Regarding the value of leucocyte counting in surgery, we feel that the question is no longer *sub judice.* Keeping in mind the exact nature of leucocytosis and how it represents the conflict of two factors, virulence of infection and resistance of patient, we can derive a vast amount of knowledge from its study in surgical cases. If we have the clinical picture of a severe infection, peritonitis for instance, and the leucocytes are markedly subnormal, operative procedures are probably useless, as the prognosis is almost surely fatal; in cases of a high or moderate leucocyte count the resistance of the patient is greater and the prognosis better.

There is probably no disease of importance to surgeons in which leucocyte counting is of more value than in appendicitis, for the following reasons: (1) Its presence or absence tells whether we are dealing with an inflammation of the appendix, or with a case of hysteria, floating kidney with twisted ureter, gall-stones or renal calculus, or the gastro-intestinal type of influenza, these conditions not being associated with a leucocytosis. (2) The grade of the leucocytosis tells us much regarding the severity of the infection, a safe rule being that if the leucocytes are above eighteen thousand or twenty thousand, operate immediately; if below, wait and watch leucocyte count and symptoms with great care to see if the process is diminishing or progressing. (3) A systematic counting will show whether the condition is becoming better or worse, and will furnish the safest of all criteria as to beginning perforation and general peritonitis, with necessity for immediate operation. (4) It may be our only means of diagnosis in a fulminating case, especially in children, in whom pain, nausea, and muscle spasm may be practically absent, due either to the appendix becoming gangrenous almost immediately, or to its being situated deep down in the pelvis. In connection with the value of leucocyte counting in appendicitis, let me briefly cite two cases.

Case I.—A patient in whom immediate operation was undesirable on account of his poor general condition; the leucocytes, counted every four hours, varied between fifteen thousand and twenty thousand for twenty-four hours, when they rose suddenly to thirty-two thousand; operation was immediately performed, and a beginning perforation found in the appendix.

Case II.—A young boy, who, the morning after a summer dissipation of strawberries, ice-cream and soda-water, had an attack of nausea with slight epigastric pain, but no rise of pulse or temperature and no local swelling or tenderness. The nausea rapidly yielded to small doses of bismuth, but as the pulse rose from about eighty to ninety-five, and the child looked ill, a leucocyte-count was made, and seventeen thousand leucocytes per c.mm. found. Appendicitis was considered probable, although the temperature did not begin to rise until the second morning. At two o'clock P.M. it had reached 100° F. The leucocytes, which had remained about seventeen thousand, suddenly jumped to thirty-four thousand. An operation was immediately performed and an enormously long, completely gangrenous appendix, seated almost entirely in the pelvis, with a fresh perforation about its middle, and a beginning peritonitis, were found. Both patients recovered.

I know that these are rather rare cases, yet they are liable to be encountered by any physician, and they exemplify the immense aid blood examination may be. In the second case, it undoubtedly saved the patient's life. No less important is leucocyte counting after an operation; many cases present all the symptoms of a general peritonitis, nausea, vomiting, and constipation, with a tympanitic distended abdomen, in which the determination of the exact condition is a matter of immense importance. Peritonitis is associated almost invariably, and in practically all cases in which operative procedures offer any hope of success, with a leucocytosis, and as an autointoxication from the gastro-intestinal tract shows no or very slight leucocytic increase, we at once see what a valuable aid the leucocyte count may be. The first condition is to be treated by operation and drainage, the second by purgation, and the life of the patient depends upon our correct interpretation of the clinical picture presented. We have seen several cases within the past few months in which the leucocyte determination alone prevented the surgeon from operating secondarily, and in which the subsequent course of the case showed that the condition was one of auto-intoxication. Thus we cannot agree with Hubbard, Deaver, and others who assign but little practical value to leucocyte counting in surgery. We feel that some of them at least have missed the vital point from their blood examinations when they reach this conclusion. It is not the establishment of fixed rules between the grade of leucocytosis and the special pathologic condition, as they attempted and naturally failed to do, that is of great importance, but it is the results obtained by frequently counting the leucocytes in the individual case which is of inestimable value in showing whether the condition is lessening or progressing. In numerous other surgical conditions the presence or absence of a leucocytosis is of very great assistance, as for instance in intestinal obstruction, where the entrance of gangrene and localized peritonitis is shown by an increase of the leucocytes; in differentiating abscess of the liver from malaria, duodenal catarrh or impacted gall-stones, of which two interesting cases diagnosed by blood-examination have been reported by McLean; in diagnosing pyosalpinx from other pelvic conditions or from typhoid fever or malaria, osteomyelitis from rheumatism or neuralgia, while the lack of increase of leucocytes in uncomplicated tuberculosis is of aid both in differentiating the various forms of arthritis, and in determining the presence or absence of secondarily invading pus organisms. The presence of a marked leucocytosis associated with a diminution of red blood-corpuscles in the case of hemorrhage is of great help in determining the cause of shock, as well as in reaching a diagnosis of the various forms of internal hemorrhage. This, in brief, tells something of what the study of the changes in the leucocytes has done for the physician and the surgeon in diagnosing and treating diseases, and in helping each in arriving at a rational prognosis.

It has rendered possible the diagnosis of a number of diseases, as the leucemias and trichinosis, besides assisting markedly in the diagnosis of many more. It has given valuable aid in the prognosis of all forms of infection and inflammation, as pneumonia, peritonitis, and appendicitis; in the anemias of scarlet fever, and in many other diseases.

It has furnished us with the means of discriminating diseases which present clinical pictures of marked similarity, such as central pneumonia and typhoid fever, appendicitis and conditions with similar symptoms but with no infection, peritonitis and auto-intoxication from the intestinal tract, lymphatic leucemia and Hodgkin's disease, myelogenous anemia and Banti's disease, and many others.

It has furnished the surgeon with a valuable diagnostic sign in all cases of infection and inflammation, besides being a criterion of great value in determining whether the process is diminishing or increasing. It has done these things and many more but it is not infallible.

It is not worthy, as yet, of the blind abiding faith placed in it by some, nor should it receive the blame and criticism it has from others, especially many of our surgical brethren, who, too often have combined poverty of technic with deficiency of knowledge of the real significance of these leucocytic changes in censuring what a greater knowledge would have made them praise. Let us rather realize both its uses and its limitations; let us regard it as a valuable aid in diagnosis and prognosis, and yet not the only staff upon which to lean; let our diagnosis be reached by a coördination and comparison of this with all the other symptoms of the disease in question. Let us study the blood changes more and more carefully and have an ever-increasing number of facts and observations at our disposal as to its changes in health and in disease, and if such a condition is ever reached when the physician and surgeon both contribute generously to this comparatively new branch of knowledge, we feel sure that the changes in the leucocytes will be of greater value to the clinician, to the surgeon, to the therapeutist and to the pathologist, in the diagnosis, prognosis, etiology and treatment of disease.

A STUDY OF BURNS.

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"A STUDY of Burns, with a Plea for a More Rational Treatment," by Dr. Griffith, published in the MEDICAL NEWS of August, 1901, deserves the earnest attention of the medical fraternity. Having been engaged along that line of study and work for several years, to me the paper was of intense interest. To the major part of what the Doctor says I give most hearty assent, but there are some points from which my personal experience compels me to differ. The alarming frequency of accidents from burns and scalds in the present era of the so common use of inflammable materials and electricity demands the earnest endeavor of physicians to discover the best methods of treatment for the prevention of both suffering and lifelong disfigurements. Dr. Griffith says: "The knowledge of sepsis in surgery has made it obligatory upon the surgeon to prevent it in surgical wounds. Burns and scalds are wounds as much as an incision and demand as careful treatment." This is true and it is to be regretted that the Doctor did not emphasize the fact that they demand the *same treatment* as an incision. Unfortunately, while the demand for antiseptic treatment in surgery is stirring surgeons everywhere to thought and action, the poor victims of burns are still subjected to all sorts of acids, oils, paint and other horrid applications that not only tend to increase their suffering, but cause loss of life and disfigurement.

Possibly the charge often made, that the science of medicine is not a science, has one of its most potent arguments in the fact that with the passing centuries other sciences have opened up newer and broader vistas with avenues for advancement, while medical science often, as in the treatment of burns, has only changed since the age of Hippocrates from lard and aromatic oils to carron oil, which so soon produces anything but an aromatic odor. Why this inertia in the treatment of burns and scalds when surgery has made such rapid strides? "Suppuration has been considered by most surgeons as inevitable," says the Doctor, and it is still so considered by most of them; but those who have made them a special study now know that in burns as in surgical wounds, without the lodgement of the pus germ in the wound there will be no pus; if there is no pus-formation, which is but cell destruction, there will be no loss of tissue; and if there is no destruction of tissue, no eschar with its attendant deformity remains.

The logic of the argument is easily demonstrated in every case. If this proposition be true, the all-important business of the surgeon is to take the basic principle of treatment, *asepsis,* and, strictly adhering to it, he will be sure of successful results. In Dr. Griffith's very comprehensive article I find mention made of pain as a factor to be considered. A dressing that prevents pain is surely worth considering. To relieve the patient without narcosis, with its frequently deleterious effects, is a boon to the patient and a credit to the physician. A perfectly antiseptic dressing will prevent pain after the first shock to the sensory nerve-endings. Without this, pain and suppuration are inevitable; with it, even with uncleanly surroundings, both can be prevented. Antisepsis has lifted the hideous nightmare of helplessness when the physician is brought face to face with a severe burn. Now with this weapon at his command, the physician can take the most unfavorable case in any stage with the positive assurance that he is master of the situation; no matter how severe the case, he can leave the patient well and not disfigured.

After many years of treating as severe cases as are often seen I have found four negations to be observed in order to obtain perfect results in the treatment of burns.

1. Never use a dry dressing.

2. Never forcibly remove the skin or deeper tissues; prevent their removal if possible. Keep the wound free from pus with a liquid antiseptic, and Nature will remove the dead tissue by

healthy granulations beneath. The skin is a protection.

3. Never use any oils or salves. If these are used, pus will form.

4. Never change dressings too frequently. A perfectly antiseptic liquid dressing will keep the wound clean and odorless; hence change is not necessary.

The earlier a burn is dressed the better for the comfort of the patient, but it can be treated at any stage with equal success. After months of faulty treatment I have seen the pus disappear in four or five days and a healthy granulation appear, healing perfectly and leaving no scar. If the patient has been in good health previously, constitutional treatment is seldom needed—no stimulants, no catharsis, no sedatives after the first hypodermic to allay the sensory nerve irritation. Antiseptic dressing prevents further constitutional disturbance.

This paper would hardly seem complete without some hints as to dressings. In individualizing dressings we will mention first those that should never be used and the reasons why.

I never use oils because they are not antiseptic and do not prevent pus formation. Nitrate of silver and acids often form eschars by breaking down instead of building tissues. Adhesive straps, by pressure, prevent healthy granulation. Above all carbonate of lead should be avoided for its poisonous effects. I saw two brothers who were burned in a gas explosion so poisoned and disfigured by the lead dressing as to make them monsters of hideousness. After months of torture both to themselves and to the mother who cared for them, their fingers dropped off and their faces were distorted beyond recognition. Another boy burned at the same time and just as badly, with other treatment recovered without disfigurement. Carbonate of soda and hydrogen dioxide in superficial burns are often useful when one cannot get something better, but they do not vitalize the tissue and for speedy healing this is very essential. After witnessing the effects of all these and more I have discarded them all and now use only glameide, which I find to be a perfect antiseptic and vitalizer. It is my sheet-anchor. It may be that when possible to use it, the pasteboard box may secure protection to the granulations when forming, but in a case that I have just treated I think that it would be hardly possible to use it. A little girl, two years of age, sat down in a kettle of hot soup just removed from the stove and carelessly placed upon the floor. She was literally cooked from her feet to the epigastric region both front and back except the knees where they were above the edge of the pot. I hardly think, with Nature's ceaseless calls and a two-year-old child's judgment, that the box treatment would have been expedient. This child, with no medicine, and only the glameide dressing, was healed and walking about in five weeks. Not a particle of pus formed notwithstanding the disadvantages of age and location. Not an eschar except a small spot where she broke the granulations during the healing process and caused profuse bleeding.

My method of dressing is, first, to give the patient a hypodermic, just enough to allay the intense pain from injury to the terminal sensory nerves. Second, arrange the bed upon which the patient is to lie. If the body is burned, I place a piece of rubber tissue on the bed large enough to encircle the body. There are two reasons for this: It prevents evaporation from dressing and wetting of bedclothes. Third, take a piece of absorbent cotton an inch thick and large enough to cover the burn on the body. Fourth, into a platter pour the antiseptic diluted with ⅓ hot water (the heat is to prevent the chill to the denuded surface); then dipping the cotton carefully into the warm dressing, place it on the rubber. Over this *be sure* to put some thin and old cotton or gauze, also wet in the dressing and carefully laid over the cotton to prevent the adherence of cotton to the wound. Lift the patient carefully and lay him upon the dressing; bring the cotton cloth carefully over the wound, then the saturated cotton, then the oil silk or rubber tissue and fasten carefully, snugly but not tight. Wherever the burn is, the treatment is the same until all is covered. Don't put the patient on a hard bed. Keep him comfortably warm.

MEDICAL PROGRESS.

SURGERY.

Perforation of the Rectum.—The following case of perforation of the rectum into the peritoneal cavity treated by laparotomy and suture and followed by recovery is reported by G. R. Turner (Lancet, May 24, 1902). A seventeen-year-old youth, admitted April 17, 1901, had been trying to vault over a broom-stick and failed. The stick passed up into his rectum, tearing a hole in his trousers and causing much pain and hemorrhage. On withdrawing it it was covered with fecal material for about two inches. He was taken to the hospital, collapsed and suffering much pain. He was pale and shivering and vomited three times. On examination a tear of the anus about one inch posteriorly was found which passed up the posterior wall of the rectum for a short distance. There was also a rent in the anterior wall. The mucous membrane beyond was smooth and feces were present some three inches from the anus. The examination was difficult and indefinite, owing to spasm and pain. After this examination the patient vomited again and there was much hypogastric pain. The abdomen was rigid to palpation and moved well with respiration. He was first seen by Turner eight and one-half hours after the operation; an anesthetic was given and a rectal examination in the lithotomy position was made, at which an extensive tear of the anterior wall was found passing through the rectovesical fold of the peritoneum into the general peritoneal cavity. A sound passed through the rent was found to touch the anterior abdominal wall. There was also a tear on the posterior wall, continuing with the damage to the anus posteriorly. A four-inch incision was made above the pubes and fecal matter and foul fluid were removed from the peritoneal cavity. After much difficulty a transverse rent two inches long was found in the peritoneum between the bladder and the rectum, the serous coat having been stripped off the posterior wall of the bladder. The examination was aided by an assistant's finger in the rectum. By pulling on the bladder and by the aid of long clips the rent was eventually brought sufficiently near to the surface to admit of suture with catgut. This was effected by means of long curved needles on handles and a cleft-palate rectangular needle. The peritoneum was carefully cleansed by sponging both before and after the suture of the rent and subsequently gently irrigated with water. The irrigation was purely local. A large glass drainage-tube was inserted and some strips of cyanide gauze were passed down to the peritoneal aspect of the rent, and another glass drainage-tube was introduced into the rectum beyond the tear of the bowel. After the establishment of a final fistula which healed promptly the patient recovered.

Linen Sewing-machine Thread for Ligatures and Sutures.—The question as to what ligatures and sutures it is best to employ in any given case is one which must often engage the attention of all surgeons of large experience. A mere glance at the list of materials employed at different times for the purposes in point must convince anyone that there is still a difference of opinion as to which is best. Most surgeons of former times used the old hempen thread and silver wire, then catgut in all its forms, then kangaroo-tendon and ox-aorta, silk of different varieties, silkwormgut, horse-hair and, finally, celluloid hemp. Each has been shown to have its disadvantages and advantages. A. E. J. BARKER (Lancet, May 24, 1902) draws attention to ordinary linen sewing-machine thread. He has used this now for ligatures and sutures in a very large number of cases for the last two years, indeed, almost exclusively, and has found it to possess the following good points: (1) It can be procured everywhere all over the world wherever there is a depot for good sewing-machines, for which it is specially spun. (2) It is relatively very cheap. (3) It can be easily sterilized by boiling in plain water and then stored in methylated spirit. (4) It is enormously strong and ties a most uncompromising knot. (5) It is easy to work with and runs easily through the eye of any suitable needle, having been spun with special care in order to travel easily through a sewing-machine needle. He has used several sizes and now limits these to three, No. 40, which is as thick as need be desired for the abdominal wall or ligature of the larger arteries; No. 60, which is thinner but still very strong, and No. 90, which is as fine as can be desired, for example, in suturing the intestine. He finds it convenient to use No. 40 white, 60 red, and 90 black. He prepares it by simply boiling for an hour in ordinary water and then keeping it in alcohol. A little of the dye comes out in the finer sizes by boiling, but does not appear otherwise to alter the thread, which can be boiled over and over again without rotting. One of the greatest tests of such a thread is an enterectomy or a gastro-enterostomy. Here he has given it wide trial and has not yet known it to behave in any but the most satisfactory manner. Many of his patients are now going about with it both in the stomach and in the intestine. Where it can be seen in the skin, as, for instance, in the long wound of a breast amputation, its non-irritating nature can be studied when it has not been tied too tight. It comes out at the end of ten days or so just as it went in. He cannot help thinking that to those who work in out-of-the-way places and often find it difficult to obtain the usual traditional materials of good quality, this linen thread will prove a boon. It probably is not absorbed at all, but appears to be none the worse for this. Cotton thread is not strong enough in his experience for surgical ligatures and, moreover, rots if boiled, but linen thread is different and the flax fiber of which it is made is long and very smooth.

Chloride of Calcium and Hemorrhage.—It is well known that in subjects of hemophilia the extraction of a tooth can cause a rebellious hemorrhage and even lead to more or less grave results. C. E. WALLIS (La sem. méd., 1902, No. 20) had occasion to observe a 25-year-old woman presenting a hemorrhagic diathesis. This slight operation provoked a rush of blood which lasted thirty-six hours. The teeth of this unfortunate woman were in a wretched condition, so that extraction was really necessary because their bad state had caused dyspepsia. In order to carry out this treatment Wallis thought of trying chloride of calcium with a hope of increasing the coagulability of the blood. Therefore he gave this medicine in small doses for one week previous to further operation. When he removed at the end of this period one of the incisors he was pleased to find no bleeding worth mentioning. He therefore continued the medicine and found that he was able after a few sittings to remove all of the teeth and roots without any severe hemorrhage. Since then he has had occasion to note a number of similar cases which he treated in the same manner with good results. The only unfortunate effect of chloride of calcium is that of constipation, which becomes rather marked after the medicine has been administered for three or four weeks.

Gastro-enterostomy.—Modifications of operations are usually redundant, but when surgeons of international importance define their choice of procedure in interventions as important as that of gastro-enterostomy it is worth while to consider their description in detail. F. TERRIER (Rev. de chir., 1902, No. 4) gives the steps of this operation as performed by him in the following terms: (1) A median laparotomy between the xiphoid cartilage and the umbilicus, extending successively through the skin, the subcutaneous cellular tissue of the region, the linea alba, and the subaponeurotic fat, and finally the peritoneum. Each side of the abdominal incision is then held lightly by Kocher clamps. (2) Exploration of the stomach practised with care to show the greater or less extent of its lesions, and to determine whether it is possible to operate on its posterior or anterior surface and, finally, whether there are adhesions between the stomach and the transverse colon or the omentum. During this examination it may be necessary to break down adhesions. (3) The colon is then drawn up and out of the upper part of the wound and placed upon hot, sterile compresses; at the same time both the stomach and the large omentum are also brought up. It is not always easy to make the stomach prominent through the transverse mesocolon and for this reason it is a good aid to place the hand back of the mesocolon, push this forward and thus gain space for the stomach beyond it. (4) Incision of the mesocolon parallel with its vessels upon the prominence made by the stomach is often increased by the above maneuver. It is better in his experience to make this incision a little to the left, because on this side the lips of the peritoneal wound are a little more distinct, more easily spread apart and the stomach more easily drawn down. Further to the right it is usual to find various bands from the mesocolon adherent to the wall of the stomach. When the latter organ has been exposed through the wound it is well to seize it gently with two Hartmann clamps placed on the same horizontal line, one at the right and the other at the left, great care being taken, however, not to close them any more tightly than just enough to hold the stomach from slipping. (5) In order to fix the opening in the mesocolon upon the stomach, he does not make a line of sutures but only three or four, usually with silk, median and lateral. (6) The loop of jejunum is now sought for and ordinarily readily found by passing the hand backward to the vertebral column a little to the left, where the bowel is found, coming slightly forward and to the left, apparently out of the posterior wall. The loop must be so arranged that this fixed portion to the left and posterior part of the operative field remains there, while the third portion passes to the right, making therefore the peristalsis of the stomach and bowel pass in the same direction, a most vital condition for the success of the operation. As a rule he leaves 12 to 15 cm. between the fixed point of the intestine and the point of anastomosis. (7) By suture the bowel and stomach are now united. After having carefully established protection of the abdominal cavity and of the two viscera with compresses, preferably by putting moist sterilized gauze between them, so that when they are open not the least fluid contents can escape, he unites with an ordinary needle and a long silk thread, sterilized, the posterior face of the stomach and the jejunum directly on the posterior aspect. He makes the suture line here concave inward from left to right. (8) The stomach is first opened. Its walls are much thicker and more vascular than those of the jejunum. (9) In front of the opening the suture line is passed. (10) A reinforcing line of sutures is often added. (11) A most careful toilet of the peritoneum is performed. (12) The abdomen is closed.

Radical Cure of Inguinal Hernia.—In the operation for the radical cure of hernia the most careful attention to asepsis is absolutely essential. It is an operation of great practical importance and it is now very frequently performed, but its success is not rarely endangered by the occurrence of slight suppuration; if, however, the suppuration be extensive the result will be a complete failure. This suppuration is in the majority of cases due to the use of silk or catgut as sutures. Silk is the better material of the two, for it is not absorbed and is more easy to sterilize than is catgut. In spite of very careful sterilization silk is nevertheless found to cause suppuration in a large percentage of cases. Suppuration sometimes occurs early, even within the first ten days after the operation; at other times it is postponed and a perfectly successful operation, in which primary union has been obtained, is followed by suppuration after the lapse of six or even seven months. In the first case there is at least some risk of failure and relapses are possible, and, since the patient's stay in bed is prolonged, he is apt to imagine that the surgeon is directly responsible for the mishap. The circumstance that suppuration may follow healing by primary union and may, in fact, not show itself until many months after a most successful result has been obtained proves that the suture material has either been imperfectly sterilized or that it possesses some property, chemical or physical, which is capable of exciting suppuration or of acting as a focus of infection conveyed through the blood. Relapses are the consequences of this defect and relapses sometimes occur even after healing by primary union without any remote suppuration. Many attempts have been made to find a substitute for silk. Silver wire has been suggested. It is inadvisable to leave wire in a wound and hence removable sutures have been devised, but these have found little favor because they are more difficult of application than is the ordinary suture and because if removed in ten or twelve days the support is withdrawn too soon, while if they are left in longer the duration of the treatment is correspondingly increased. In order that silver wire may be of sufficient strength, it must be thick and it is then open to the objection that in passing through Poupart's ligament it weakens that materially. It is for these reasons that Tansini (Lancet, May 24, 1902) recommends the use of gold for suture, for this material can be drawn into wire not only finer than silk, but stronger and more flexible. With such a wire it is as easy to apply sutures as with silk and it cannot do harm as a foreign body. The suture is fixed by twisting the ends three times and this requires less time than tying a silk suture. Using this suture and the new instruments presently to be described, he has performed the radical operation for inguinal hernia in ten minutes. Thick wire for the deep sutures and thinner wire for the superficial sutures are the selection he prefers. For tying off the neck of the sac he uses the same wire as for the deep sutures and for suturing the sac, if necessary, the same wire as for the superficial sutures. The ends of the deep sutures are seized with dissecting-forceps and turned into the thickness of the internal oblique muscle. The ends of the superficial sutures, which are very thin, are left as they are. After many experiments with a view to finding the most ductile alloy and the smallest possible size of wire he has succeeded in getting what he desired through the firm of E. De Amici, of Via San Sepolcro, Milan. The cost of the wire may seem high, but in actual practice the result is an economy. The gold remaining in the patient's body weighs only 12 to 60 cg. (2 to 10 grains). The cut off ends of the wire can be remelted and used over again. The special instruments which he finds of service are a hook, a curved retractor and a spatula. The hook is reserved for the spermatic cord, which it retracts by its own weight. The blunt retractor is so arranged as to hold within its grasp the various muscle-layers which must be kept out of the way during the suturing. The spatula is put upon the floor of the wound to depress it and keep it away from the line of sutures as they are placed in position. The value of this series of instruments is that it is never necessary for any hands to touch the wound. These four, together with the gold sutures, he claims to be the source of still greater success than is usually the rule as the operation is commonly done.

Infection by a Paracolon Bacillus.—It would appear from a series of late researches that the group of bacilli intermediate to the typhoid and colon bacilli are destined to become of as much interest in surgical pathology as is the typhoid bacillus. In this connection an interesting case is reported by Berg and Libman (Jour. Am. Med. Assoc., June 7, 1902). From the clinical history the diagnosis lay between empyema of the gall-bladder with cholangitis, abscess of the liver, and typhoid fever with cholecystitis. As regards the latter there was no roseola, no enlargement of the spleen, and no Widal reaction. An exploratory operation showed no lesions of gall-bladder or liver except slight thickening of the ducts. Pathological examination showed during life the presence of a paracolon bacillus in the blood, urine, and gall-bladder, and to this the systemic infection must have been due. The development of a Widal reaction late in the disease in dilution of 1 to 250 showed the presence also of typhoid. This was confirmed at autopsy by healed and healing ulcers in the ileum. The authors believe that the typhoid was of the ambulatory type to which the paracolon infection was secondary and had overgrown the original infection.

Avulsion of the Scalp.—As only thirteen cases of this character are recorded in medical literature, the addition of another with the results of treatment should prove of interest. W. T. Bivings (Phil. Med Jour., June 7, 1902) has had under treatment a girl of fourteen, who sustained a complete avulsion of the scalp together with the periosteum. The surface was thoroughly cleaned and dressings of aluminum acetate solution applied. Three skin-grafting operations were done after varying intervals, due to the onset of bronchopneumonia at one time and mumps at another. The methods employed were those of Thiersch, Krause, and Lusk, the skin being taken from the patient and two other individuals. The skin from the belly of a frog and the vitelline membrane of an egg were used without success. Healing was complete in about ten weeks. The following points are emphasized by the author: The benefit of shaving, thoroughly scrubbing and rendering the scalp wound as aseptic as possible at the first dressing. The superiority of the Thiersch method of skin-grafting over all other methods tried. Skin-grafts taken from the body of the patient grow far better than grafts from the skin of other people.

Myelorrhaphy Followed by Return of Function.—It is unrefuted that severed peripheral nerves may functionate after the ends have been approximated, but that regeneration of the central nervous system occurs is denied by practically all investigators. STEWART and HART (Phila. Med. Jour., June 7, 1902) submit a case, which they believe to be the first myelorrhaphy performed in man, as evidence of the power of the spinal axones to regenerate. The patient, a woman of twenty-six, was shot, one of the bullets entering the spinal canal at the seventh dorsal vertebra. There resulted complete abolition of motion and sensation below the level of the tenth dorsal spine. Three hours after the accident operation was done. An exposure by incision and dissection showed the right lamina of the seventh dorsal vertebra to be crushed in and the left lamina fractured at its base. Removing the spines and lamina of the seventh and eighth dorsal vertebræ showed the cord to be completely divided, the ends being separated three-quarters of an inch after the lacerated nervous tissue was cut away. The ends of the cord were then approximated with three chromic gut sutures, one passed anteroposteriorly and two transversely through the entire thickness of the cord. The dura could not be approximated. A small gauze drain was left in place for twenty-four hours. The muscles were united with catgut and the skin closed with silkwormgut. The condition after operation was excellent and the wound was healed by the seventh day. Sensation began to return in a few days and at the end of two weeks flexion of the foot was recognized as such and followed by powerful leg contraction. Deep pressure could be felt over limbs and abdomen. In three weeks urine in the bladder could be felt but not voided. Pin-pricks were felt as far as the umbilicus, but could not be localized. The patellar reflex returned. In two months the knees could be feebly flexed and by the fifth month the patient could slide out of bed into a chair without aid. During the seventh month the menses returned. By the eighth month she had good control over the bladder and bowels and was able to stand with support. General improvement continued and by the fourteenth month she could take a tub-bath, feel the water on the lower extremities and distinguish between the hot and the cold. Two months later flexion and extension of the toes, legs, and thighs could be done, with flexion stronger than extension. Sense of touch, temperature, pain, and position all over, and general health were excellent. The maxim of spinal surgery is, "no interference" when the cord is divided or crushed. The authors of this paper believe, however, that every case of this character should be thoroughly explored at once and not left until it is determined whether the symptoms are due to pressure or to concussion. Myelorrhaphy is especially indicated when the cord has been severed by a sharp instrument or a projectile.

Hour-glass Stomach.—A few years ago it used to be thought that the condition of hour-glass stomach was a great rarity, that its diagnosis was almost impossible, and that treatment could at best only palliate the misery entailed. Recently, however, since surgeons have been called upon to deal with obstinate gastric affections more frequently than before, there has been a complete reversal of these opinions. MOYNIHAN of Leeds (Edin. Med. Jour., June 19, 1902) states that within less than two years he has had under his care 14 patients suffering from hour-glass stomach; that in the last 8 of these, 6 were diagnosed with certainty; that treatment resulted in recovery in 10 of them, while death in at least 2 of the other 4 cases was due to conditions not induced by the operation. The anatomical condition varies markedly in the different cases, and is of great importance in its bearing upon treatment. The deformity may be due to constriction by external bands, or by adhesion to neighboring surfaces. Perigastric adhesions may be due to many causes—peritoneal irritation from gastric ulcer, old tuberculous peritonitis, old cholecystitis, etc. The most important causes, however, are those traceable to disease of the stomach itself, namely, ulcer and cancer. Chronic gastric ulcers are characterized by great thickening and induration of the base. In the healing of such ulcers, there is a considerable amount of cicatricial contraction, and a high degree of narrowing of the stomach may result. Spasm of the circular muscles, with hypertrophy and thickening, tends still further to reduce the aperture. Thickenings of this sort very often simulate cancer, even after the abdomen has been opened. The stenosis varies in caliber. It varies in extent from a ring-like constriction to a tube. It may indent the greater curvature, giving rise to the U-shaped stomach, or the lesser, causing the inverted "U." The tendency of ulcers to be multiple often gives rise to more than one stricture, a condition demanding a special mode of treatment. The symptoms of the condition will naturally vary with the site of the constriction: if this lie near the cardiac end, they will resemble those of esophageal obstruction low down; if it be near the pyloric orifice, the symptoms are those of dilated stomach. Under any circumstances, the diagnosis can almost always be made with certainty. The most important symptoms are furnished by lavage of the stomach and by its inflation with gas. If the tube be passed and the stomach washed out with a known quantity of fluid, it will be found that less is returned than has been put in. The stomach may be washed clean; then, after a short interval, several ounces of dirty, offensive fluid may be obtained. The stomach may be apparently emptied by the tube, and yet succussion is obtainable; the splash is due, of course, to the retained contents of the pyloric pouch. When the stomach is inflated, the hour-glass shape may be distinctly outlined externally; or a bulging to the right of the epigastrium may gradually pass over to the left; or this latter condition may be accompanied by a gushing sound, to be heard with the stethoscope; or there may be an enormous increase in the resonance of the upper part of the stomach, while the lower part remains unaltered. All these signs are simply sequelæ of the physical condition; two pouches connected by a narrow neck. The following operations are practised: gastroplasty, gastro-gastrostomy, gastro-enterostomy, partial gastrectomy, and jejunostomy. The indications suggest themselves. A narrow cicatrix demands a plastic; two pouches are treated either by anastomosis, or double gastro-enterostomy, or the latter with gastroplasty; new growths require removal or exclusion, and so forth. It will be seen that the article represents an enormous advance in our attitude toward this most serious disease.

Subcutaneous Saline Injections.—The introduction of normal saline solution into the circulation to counteract shock, to dilute and alter the composition of the blood, or to replace the loss from hemorrhage, is a therapeutic measure of proved utility. Of the three methods of injection—intravenous, subcutaneous, and rectal—the subcutaneous is the most common and will probably always be the most favored. It is safer, simpler and of less elaborate technic than the intravenous, yet equally certain, and almost equally rapid; while it is more efficacious and more speedy than the rectal. GEORGE MAGUIRE (Jour. of Obstet. and Gyn., Brit. Empire, June, 1902) has devised an instrument for performing subcutaneous injection of salt solution, which is a trocar and cannula with a rubber attachment. The cannula is double channeled in its upper third.

Resection of the Liver.—Surgery of all the so-called parenchymatous organs like the liver has always been surrounded by the hazard of fatal hemorrhage. KOSLENKO (C'blatt f. Chir., 1902, No. 18) has been making experiments in this line, chiefly with the steam saw of Prof. Sneguirew, upon animals and offers the following results of his experiments. He has found that in the ordinary methods of resecting the liver by which steam is used several difficulties are encountered. First, the steam rushes out of the tube under its own pressure and therefore tears away more or less the already damaged surface of the organ; this is necessarily followed by a renewal of bleeding. Second, while the operation is going on, the presence of so great a volume of steam in the operating field is necessarily an obstruction to a good view of the work. The patient really loses more blood and oftentimes a special assistant is necessary to manage the same. Third, the volume of steam is so great that it is apt to damage other parts of the organ than that under operation. The saw of Prof. Sneguirew is so made that the steam is delivered at the point of the teeth and in quantity just sufficient to act as a hemostatic. It will be seen that this arrangement for delivery of the steam at once does away with the other difficulties. The other necessary details for successful work on the liver are given by Langenbuch in the following terms: The largest possible operation field is required, and often to attain this the ligaments of the liver must be cut through. In order to make the liver anemic the superior and inferior mesenteric arteries must be temporarily ligated. The exposed parts of the organ should be encircled by an Esmarch bandage. For the exposed surfaces of the wound it is necessary to have at hand all of the well-known means of checking hemorrhage, thermocautery, sutures, tampons, etc. The result of Koslenko's experiments upon dogs has taught him to regard this steam saw as an instrument by means of which the liver can be divided or resected without great danger of bleeding. If a very large blood-vessel be encountered, it may be controlled by special ligature or by directing against it a single stream of steam. He has had in these animals no secondary hemorrhage whatever, and the wounds of the liver healed well by granulation, after the secondary development of connective tissue. He therefore hopes that this saw will prove of inestimable value in surgical work on the liver of the human being.

A Convenient Face Mask.—There are surgeons who have adopted the conscience-satisfying methods introduced chiefly in Europe, which consist of rubber gloves, caps, masks and the like. It is difficult, however, to get these articles made so as to be comfortable. F. WENZEL (C'blatt f. Chir., 1902, No. 19) presents the following means of combining cap and mask so as to make both very comfortable. An ordinary piece of gauze is folded three times and cut so that it shall be about 80 cm. long and 50 cm. wide. In the gauze a space for the eyes is cut so that it shall be perhaps 30 cm. from one end. At the upper and lower margins of this eye-space ordinary tapes are stitched or pinned and are tied behind the head, keeping the eye-space and the whole covering in place and preventing ravelings from causing inconvenience. The corners of the gauze are then tied behind the head, loose or tight, according to the beard and other needs of the operator. The redundant part falls loosely to the neck and shoulders and this is covered up by putting on the gown after the mask and cap are in position. In this manner all loose ends which might get in the way are covered up and the whole is loose enough to give perfect freedom.

Appendicitis.—This protean disease is now so frequently diagnosticated that the public is beginning to think with perhaps excellent reason that, whatever the truth of the case may be, either the disease is increasing with uncommon rapidity or physicians and surgeons are overanxious to find it. It is well to bear in mind the great number of conditions in the abdominal cavity, especially below the level of the umbilicus, which may cause approximately the same symptoms and signs and thus deceive even the wary. A very complete list of these conditions, chiefly abscesses in the right iliac region and other lesions not of gynecological or appendiceal origin, which may be mistaken for appendicitis, is given by J. M. SPELLISSY (Annals of Surgery, June, 1902). His list is moreover illustrated by a number of very interesting cases. It is impossible, however, to do more than give the list, which can be pasted into the text-book of every reader under the heading of appendicitis. (1) Bones and joints: Vertebræ, sacrum and ilium, femur, especially tuberculous osteitis. (2) Muscles: Iliacus, psoas, external and internal oblique, and abdominal, chiefly myostitis. (3) Nerves: Ilio-hypogastric and inguinal, lumbo-abdominal by neuralgia, sympathetic by neuralgia, pneumonia and pleurisy, and the general nervous system by hysteria. (4) Glands: Chiefly in the form of adenitis, may affect the prececal, retrocolic, retroperitoneal, abdominal (especially syphilis), and tonsillitis. (5) Peritoneum: General as a serositis, omental as a true peritonitis, or tuberculous as a peritonitis. (6) Vestiges and diverticula: Vitello-intestinal and intestinal-funicular by infection and abscess, Meckel's by obstruction. (7) Colon: Impaction perforation following impaction or from foreign body, malignant disease, especially carcinoma. (8) Cecum: Foreign body (orange pulp), enteroliths, intussusception, especially ileocolonic, perforative ulceration, perforative malignant disease, tumors (fibromyoma, carcinoma, sarcoma). (9) Ileum: Foreign body, chronic lead poisoning, acute inflammation with localized peritonitis, chronic inflammation with adhesions, perforation, typhoidal ulceration of Peyer's patches, malignant disease (soft sarcoma, and lymphosarcoma). (10) Duodenum: Perforative ulceration. (11) Stomach: Perforative ulceration, gangrenous polyp. (12) Abdominal cavity: Foreign body, like ligature. (13) Hernia: Properitoneal (Littré's) or into the fossa of Treves. (14) Spleen: Inflammation. (15) Pancreas: Inflammation. (16) Kidney: Floating kidney, hydronephrosis, pyonephrosis, perinephritic abscess. (17) Urethra: Abscess, gonorrheal inflammation, calculus. (18) Prostate: Gonorrheal inflammation, acute epididymitis. (19) Liver: Subhepatic abscess. (20) Gall-bladder and ducts: Dilatation, rupture, cholecystitis, empyema, cholelithiasis with or without dropsy, cystitis or empyema, abdominal abcess following empyema of the gall-bladder, gall-stones in and obstructing the intestines. This is veritably a formidable list, but will serve to illustrate how exceedingly careful one must be in deciding between any one, especially the more common, of these conditions and appendiceal difficulty.

Kidney Complications after Furuncles.—In a discussion on furuncles of the skin, A. CAHN (Münch. med. Woch., May 13, 1902) states that in case of obscure temperatures appearing after they have been opened, the kidney regions should be carefully examined, as he has met with four cases in which paranephritis or pyonephrosis developed. Palpation of the right side with the patient on his back and of the left side with the patient in the diagonal position with flexed neck and body and drawn-up thighs may lead to the discovery of a distinct resistance; the urine may be normal or be that of an acute parenchymatous nephritis. In general the cocci from furuncle are carried by the lymphatics; it is only rarely, with their superficial site, that they get into the veins to be carried to other parts of the body. But that this is possible is explained by the occurrence of osteomyelitis, synovitis and the kidney-complications just described.

Perforating Ulcer of Foot.—It is well known that ulcers on the feet resemble each other as to seat, development, form and course irrespective of etiology. They are generally found where most pressure is exerted and a hyperkeratosis precedes them which in time exerts more pressure and thus leads to a *circulus vitiosus*. It would therefore seem that at the bottom of the trouble there is a diminished sensibility which prevents the patient from noticing the offending shoe, etc. That this is not the case, however, is clear from the article of E. TOMASCZEWSKI (Münch. med., Woch., May 13 and 20, 1902), who says there are many cases in which sensibility is intact or in which no trauma is exerted on the feet. He is inclined to believe that an isolated sclerosis of the plantar arteries plays an important part, since there is frequently an absence of pulsation and but little bleeding occurs during operation. Then, again, ulcers are rarely situated on the heel, for, unlike the more anterior parts of the foot, this is supplied by vessels of large caliber. Arteriosclerosis is also a common lesion in diabetes, syphilis and nervous disturbances and frequently is most developed in the parts furthest away from the heart. Whether any trophoneurotic disturbances are also at work is not clear, since the existence of trophic nerve and centers is still unsettled, though degeneration in the nerves supplying the affected parts has been demonstrated; these also occur in cachectic individuals without ulcers and in artificially induced ulcers. The proper course to determine the cause of a perforating ulcer is to feel the anterior and posterior tibial pulses and to examine the urine for sugar; if both procedures prove negative, to take a complete nerve status, for the ulcer may well be the first subjective manifestation of a cerebral, spinal or peripheral disease.

Operation for Rectovaginal Fistulæ.—It frequently happens that the ordinary operations for closing rectovaginal fistulæ are unsuccessful and leave larger openings that those which previously existed. More than two years ago H. N. VINEBERG (Med. Rec., June 7, 1902) was confronted with one of these cases which resisted ordinary methods of operation. He conceived the idea of excising the mucous membrane of the rectum from the skin up to the fistulous opening, and then by freeing the mucous membrane above this point from the subcutaneous tissue he brought the edge down and sutured it to the skin. This is, of course, similar to the Whitehead operation for hemorrhoids and can be used even when the rectal opening is two or three inches above the anus, provided the mucous membrane is properly freed. He has since learned that a similar operation was performed by a French surgeon in 1895.

Gunshot Wounds of Stomach.—It is estimated that in gunshot wounds of the abdomen the death-rate is nearly 90 per cent. In this age of aseptic surgery such a condition should in no way be satisfactory to the medical profession. P. F. EVE (N. Y. Med. Jour., June 7, 1902) urges the necessity for immediate operation in all cases in which a penetrating wound of the abdomen exists, provided anything like aseptic surroundings can be obtained. In the recent wars it was shown that when a small-caliber, long-range rifle is employed the wound is so slight that the indications for operative measures are less imperative, especially in cases in which the wound has been received after a long period of fasting. The palliative treatment consists in absolute rest, the smallest if any quantity of fluid being taken into the stomach, the use of opiates to relieve the pain and remedies for counteracting shock. If the wound has been so small that there is very little or no leakage from the gastro-intestinal tract only local peritonitis results and the pressure of the bullet seldom gives any symptoms. The chances of a secondary general peritonitis are so great, however, that whenever a surgeon can be reasonably sure of his asepsis it is much better to explore even small penetrating wounds. A wound of the stomach almost always means that there is a perforation in more than one place, and a most diligent search should be made for openings in the posterior wall. After closing the wounds the peritoneal cavity should be thoroughly washed out, preferably with normal saline solution, even though the wound in the stomach wall be small and the contents of the stomach have not apparently exuded.

GENITO-URINARY AND SKIN DISEASES.

Winkelmann's Hydrocele Operation.—The following technical observations are offered concerning Winkelmann's hydrocele operation and its final result by W. MINTZ (C'blatt f. Gynaek., 1902, No. 20). They concur with similar findings by Lauenstein and Gückel in regard to relapses after it. They showed a new collection of fluid between the tunica propria and communis, which had not become adherent. This is a result which need not cause surprise when one considers carefully the original method described by Winkelmann in 1898, which consisted primarily of carefully crumpling up the tunica propria and forcing this into the tunica communis, disposed as a sac to receive it. In four cases which Mintz has operated on he has not shelled the hydrocele as a sac out of the tunica communis, but has taken the two together and divided the various layers and then, after bringing the testicle forward, has folded these backward and sutured them. In this way the secreting surface of the tunica propria is turned outward and faces the dry connective tissue, which fills out the pocket in which the testicle hangs and therefore has a greater tendency to absorb whatever fluid may be secreted by the tunica propria. In this very process of resorption, which in the original operation of Winkelmann was trusted entirely to the tunica vaginalis communis, there lies, according to Lauenstein, the greatest difficulty of this method, due to the failure to obliterate the spaces. In order to save the patient from the difficulties of leaving silk sutures behind, which tend to hinder the backward fold of these tissues, Mintz has hit upon a method of autorrhaphy. The silk sutures are replaced by strips of tissue which are gained by snipping along the edge of the incision in these tissues until a little strip is cut of sufficient length to permit of tying. At the point of desired suture two such strips are cut with their bases near each other. Then one of them is carried through the posterior margin of the wound and the two are tied. In this way the necessity for permanent suture is avoided.

Mixed Treatment.—One of the deceptive inconveniences which affect the subcutaneous or intramuscular injections of the insoluble salts of mercury consists, as is well known, in the production of small nodosities which often enough become involved and finally end in an abscess of size sufficient to warrant incision and drainage or which rarely opens of itself. As a rule these purulent collections are attributed to defective technic and notably to a fault in asepsis, but R. DUHOT of Brussels (La sem. méd., 1902, No. 20) has been able to prove that the accident in question may be simply due to the employment of iodide of potash and an insoluble salt of mercury, such as calomel, combined. This follows from the formation of the biniodide of mercury, a caustic salt which results from this association of the two substances in the body at the same point. He has had occasion to treat a syphilitic man, 27 years of age, who had already borne very well treatment by injections of calomel. Upon this man he instituted the newer method, called the associated injection, which combines the use of iodide of potash in a dose of two grams with mercury. The first four injections produced no abnormal result, but as soon as the iodide was increased to three grams the patient began to complain of violent pain at the point of the fifth injection of calomel. The following day he saw at this site a node the size of a pigeon egg, which ruptured spontaneously the following day and discharged a thick liquid of a reddish-brown color, containing large quantities of decomposed blood elements, especially a large number of red blood cells. The fluid was completely sterile, as proved by inoculations upon agar and blood serum. The sixth injection was followed by the same accidents. He then stopped giving the iodide and was able to continue the injections of the calomel without causing the least complication. He therefore concluded that in this patient the aseptic abscesses were due to a chemical reaction within the body. This observation agrees very well with similar results which followed the experimental researches instituted by F. Lesser and A. Neisser. The former of these two observers has proved that in a rabbit in whose blood alkaline iodides were made to circulate one could introduce into the stomach by means of an esophageal sound a mass of calomel, and then after twenty-four hours kill the animal and find at the autopsy numerous ulcerations in the mucous membrane of the stomach. He therefore thinks that before prescribing any calomel it is well to assure one's self that the patient has not been taking recently any preparation of iodine. In a case of doubt it is well to examine the saliva for iodides by adding to it a little calomel. If the latter salt take on a yellow color, due to the formation of iodide of mercury, it is because the saliva contains alkaline iodides. Moreover Lesser and Duhot think that in grave cases of cerebral syphilis or of visceral syphilis, when great danger threatens the patient, it is better to combine the mixed treatment irrespective of these accidents which may be expected in rare cases. As a rule, when the symptoms of the syphilis are not extremely marked and other general circumstances permit, it is perhaps better to employ the iodide of potash and the mercury separately, especially if calomel be the salt of mercury selected.

Prostatic Hypertrophy.—Even the best authorities of to-day differ widely in regard to the best method of operating upon a hypertrophied prostate, but undoubtedly the operation should be modified to suit the individual case. The suprapubic method affords the best view of the field of operation and is much better when the enlargement is great, but it is probably attended by a greater mortality. C. E. CHETWOOD (N. Y. Med. Jour., May 31, 1902) favors the perineal route in most cases and has modified the ordinary incision or enucleating operation by the use of the galvano-cautery. A perineal section is first done and a digital examination made. The character of the hypertrophy is determined and then a specially-devised cautery knife with concealed blades is introduced and, according to the case, one median or one or two lateral incisions are made. The bleeding is usually very slight and recovery rapid. The results thus far have been very satisfactory. The author believes that there will be a tendency toward earlier operation in this condition, as soon as the mortality can be reasonably reduced, for the complications from unnecessary delay are very serious.

Lupus Erythematosus of the Nose.—A young woman with negative family history and previous history had a skin lesion of four months' standing when seen by H. S. PURDON (Dublin Jour. Med. Sciences, June, 1902). There were three small patches of the characteristic dusky or reddish color close to the right nostril. The edges were clearly defined and surrounding them was a well-marked, distinct elevated ridge of pale color which was both visible and palpable. The sebaceous follicles of the nose were plugged up. The affected surface felt rough. Under the use of a salicylic acid preparation and painting with a solution of ethylate of sodium, the disease is improving and the ringed ridge is disappearing.

Use of the Cautery on the Prostate.—In presenting a new method of using the cautery, W. N. WISHARD (Jour. Cut. and G.-U. Dis., June, 1902) is of the opinion that cauterization of the prostate should always be done with the operative area under direct observation and that preliminary opportunity for digital examination of the prostatic urethra, vesical orifice and bladder should be given and that after operation bladder drainage should be secured. The writer's special instrument for the application of the cautery through a perineal opening consists of a form of endoscopic tube bent at the end, with electric light illumination. The cautery wire works through a groove near the end and being adjustable can be made into any length. There is also provision made for inflating the bladder with air. Four cases with prolonged prostatic obstruction were thus operated upon under local anesthesia—Schleich's infiltration method—with good results.

NEUROLOGY AND PSYCHIATRY.

Senile Tabes.—Tabes is most common between the ages of twenty-five and forty-five, writes A. PITRES (Jour. de méd. de Bordeaux, May 18, 1902), yet 25 per cent of the cases observed by the author occurred after the fiftieth year. Three cases are reported which began after the seventieth year, the patients having up to that time enjoyed good health, with the exception of one, in whom tabetic symptoms followed an attack of influenza. In the experience of the writer, the symptomatology of senile tabes is practically identical with that observed in earlier life, save that the onset is generally rapid and not characterized by a pre-ataxic stage. Autopsy in two of the cases referred to showed marked atheroma of the peripheral and large spinal arteries, atrophy of the posterior roots and sclerosis of the posterior columns being noted as in ordinary tabes. From these studies it is concluded that senile tabes is less closely related to syphilis than tabes of earlier life, that it is indirectly attributable to any cause, acute or chronic, which induces degenerative changes in the arterial system (senility, alcoholism, infectious diseases), and that it probably constitutes a manifestation of spinal arteriosclerosis rather than an effect of luetic infection of the nervous center.

Rest in Bed and Epileptic Delirium.—Various clinicians are still disputing about the value of treating delirium due to epilepsy by rest in bed. This delirium is particularly obstinate and is one of the conditions which come under the care of the general practitioner often. It is therefore wise to give the results which have followed this method of treatment in the hands of the eminent author, E. MARANDON (La sem.

méd., 1902, No. 21). Of 19 epileptics with delirium which he has treated in this way only one obtained incontestable advantage from it. Under the influence of the rest in bed the crises, which before had lasted five days and consisted chiefly in a mania with hallucinations of sight and hearing, refusal of food, complete insomnia, etc., became shorter, from five to three days, and less severe. When the third seizure appeared after the beginning of the treatment the fit remained purely one of motor elements. The patient fed well and could sleep fairly comfortably during the night. After this the crises of delirium were not again in evidence. In four other cases the results of rest in bed were much less favorable. The crisis itself lasted longer but was really less active and the amelioration was not especially constant. In ten patients among whom three had been the victims of crises of delirium this method of management remained absolutely useless. In still four others rest in bed appeared to aggravate the situation. Basing his views upon these patients, this author has adopted the following line of treatment. He does not prescribe rest in bed until he has observed the duration, intensity and general symptoms which accompany the first active crises of delirium. After he has in this way made a comparison in order to estimate the probable result of rest in bed, if he thinks it will give no results, he does not hesitate to refuse to employ it and substitute in its stead mere isolation and quiet, which to the majority of patients is a vastly more agreeable and acceptable situation than being kept in bed.

Toe Reflex.—The Babinski toe-reflex, a dorsal flexion of the big toe after irritation of the plantar surface of the foot, which is supposed to indicate a lesion in the pyramidal tracts, has been tested in a large number of cases by H. LEVI (Münch. med. Woch., May 27, 1902) and found to be not entirely reliable. In 6 per cent. of the cases in which disease of the pyramidal tracts could be definitely excluded, the reaction proved positive and of the remaining 94 per cent. only 86 per cent. gave a distinct, primary plantar flexion. In functional diseases there always was plantar flexion, but there is a certain number of cases reported in which a Babinski-reflex was present. In paralysis agitans, Huntington's chorea and epilepsy, the phenomenon never occurred. In two cases of recent hemiplegia, the reaction was present but disappeared in a few days, while the paralysis improved to a paresis, though this certainly was not of a functional nature. That increased knee-jerks in general paresis do not always signify pyramidal destruction seems probable from the frequency with which no Babinski-reflex could be obtained; conversely, quite a few cases come under observation in which a Babinski-reflex and absence of knee-jerk went together.

Basedow's Disease.—There are two dominating theories in regard to the cause of this disease, the neuropathic and the glandular. There is a strong tendency at the present time to consider it as a glandular disorder dependent upon the hypersecretion of the thyroid gland. C. L. DANA (N. Y. Med. Jour., June 14, 1902) believes that the primary disturbance of the disease is in the cerebral centers, and particularly those which control the nutrition of the thyroid and regulate the action of the circulation. These centers are constitutionally weak, as shown by the almost uniform neuropathic personal and family history, and they are further weakened through emotional strain and infections. This disease frequently follows fevers, sepsis, operative procedures and pregnancy. Typhoid fever seems to be followed by exophthalmic goiter more often, perhaps, than do the other infectious fevers. He reports two cases of rather acute course in which autopsies disclosed pathological changes in the nerve cells of the pons and of the medulla, and he believes that in well-marked cases these changes in the nuclei of the pneumogastric and other nerves are constant and important lesions.

Focal Facial Epilepsy.—The subject of focal epilepsy is of so much importance in diagnosis that contributions to this subject must in the present state of knowledge of cerebral localization be of considerable value. MCCARTHY and FRANCINE (Phil. Med. Jour., June 14, 1902) report a case of focal epilepsy occurring in an old woman, affecting the right side of the face and tongue, and followed by a paralysis of the same lasting from three to five minutes. This paralysis following a localized convulsion makes the case interesting. The differential diagnosis of an organic brain lesion from hysteria had to be considered. The history showed that the first attack of convulsive movements followed an accidental scalp wound by a hat-pin, but, although this may have been hysterical, it is believed that reflex epilepsy may have been caused by an intense pain. The unique distribution of the paralysis in this case leads the authors to believe that there is a small lesion of gradual development localized in the left motor area in or near the face center, that it is not sufficiently developed to cause serious disturbance of function of the motor cells for the face and tongue, but by irritation leads to paroxysmal convulsions followed by paralysis.

The Lacrimal Reflex.—By this term is meant the secretion of tears produced reflexly by irritation. The preservation of the lacrimal reflex in hysterical anesthesia of the conjunctiva has been noted by a number of observers, but W. G. SPILLER (Phil. Med. Jour., May 17, 1902) suggests that in a case of anesthesia in the distribution of the trigeminal nerve, with implication of the conjunctiva and nasal mucous membrane, the lacrimal reflex should be much diminished and that in this diminution there might be a sign of importance in diagnosticating between organic and hysterical anesthesia. Irritation of the nostril seemed to be the most satisfactory way of testing this reflex. Cases in which the Gasserian ganglion had been removed and in which anesthesia had existed a long time in consequence should prove the most favorable for the test. The author has examined two such cases and found the lacrimal reflex considerably diminished in the anesthetic eye. Further observation will determine the value of this reflex in differentiating between organic and hysterical anesthesias of the face.

Methylene Blue and Insanity.—It is easy to recall the results obtained by P. Bodoni in studying by means of injections of methylene blue the permeability of the kidneys in the insane. He found that in certain cases these injections exercised a calming effect in the presence of mental excitation and mania. Furthermore D. E. HUGHES and E. LOVELACE (La sem. méd., 1902, No. 17) have recently experimented with the same drug on twenty-two patients afflicted with various forms of psychosis accompanied by excitement. The medicine was administered in part by mouth, in part by injection beneath the skin in doses of 0.006 gram repeated, if necessary, several times during the day. The sedative effects were not as constant as were those noted by Bodoni. Among the 22 cases 6 were not at all benefited by it, while the other 16 were very much calmed at the end of three or four hours and remained so for from fifteen to twenty hours. Methylene blue produces a sedative effect upon the majority of psychoses. On one occasion only has it been noted that a light degree of depression occurred. The medicine is almost always well borne, although its use has been in some cases continued for a month or more. In one instance it has been seen to provoke vertigo. It is well to note that the injections may cause an abscess. For this reason it is best to boil the methylene blue, because the product often contains microbes.

Pathology of Amaurotic Family Idiocy.—The case studied by K. SCHAFFER (Wien. klin. Rundsch., Apr. 20, 1902) was a girl, sixteen months old, of Jewish parentage, whose birth was normal. When she was ten months old the extremities became rigid and a well-marked apathy developed. The presence of a cerebral diplegia could be determined, with contracture of the flexors of the upper extremity. The ophthalmoscope showed the typical picture: Both papillæ were normal, but in the region of the macula there was a bluish-gray spot, the size of two optic disks in diameter, with indefinite margins and a red center. The family history was negative and all brothers and sisters were healthy. Death occurred in a few days; an autopsy was performed, the brain and spinal cord being carefully examined. Macroscopically, no abnormalities were evident, but Weigert's stain revealed extensive degeneration in the cortex of the cerebrum and in the lateral pyramidal tracts of the cord and only the ascending spinal, bulbar and cerebellar tracts approached normal.

MEDICINE.

Guaiacol and Tuberculosis.—After having been in vogue for a certain length of time large external doses of guaiacol recommended several years ago as a means of combating fever, especially in phthisis by Sciolla and Maragliano, have gradually fallen into disuse. The cause of this has chiefly been alarming symptoms in the form of excessive fever and collapse to which they too frequently gave cause, but according to the observations of N. LAVROV (La sem. méd., 1902, No. 20) these unfavorable results are due only to large doses more or less in excess of the amount habitually employed for cutaneous application and may usually be easily avoided by following a procedure like the following: For each application 0.50 to 2 grams as a maximum of guaiacol are taken and placed upon a region the dimensions of which must not be less than 30 or 40 sq. cm. Then it is well to cover the part thus treated with glass of sufficient size and fixed to the skin by bits of adhesive plaster. Under this hermetically closed dressing the guaiacol is readily absorbed, usually within six or twelve hours, according to the quantity of the medicament taken. If these applications be carried out once a day in phthisical patients more or less favorable influence will be the result upon the fever, the cough, the night-sweats, sleep, appetite, and also upon the catarrhal phenomena in the lungs. As a rule these applications do not cause any local irritation, at least such are not appreciable. Occasionally it is possible to get a slight degree of redness of the skin which will not fail to disappear under inunctions of oxide-of-zinc ointment.

X-rays in Medical Diagnosis.—The utility of X-rays for medical diagnosis is clearly set forth by W. S. HAUGHTON (Dublin Jour. Med. Sciences, June, 1902) after examining over 1900 medical cases. In pulmonary tuberculosis two constant signs are opacity, depending on the extent and density of the consolidation, and restricted movement of the diaphragm on the affected side depending on the loss of elasticity of the lung tissue. When delicate differences in shadow have to be estimated, as happens in very early cases of lung trouble, the fluoroscope is best, as one can graduate the X-ray light when using the fluoroscope and see what cannot be shown by photographs. For heart and diaphragm the lamp is best about two feet from the screen. Note first the heart and diaphragm in quiet breathing, then in forced expiration and inspiration, and finally scrutinize the relative transparency of all parts of the two lungs. The positions can be marked on tracing paper, on which also the episternal notch, ensiform and nipples are located, or a large sheet of celluloid may be used for tracing. X-rays in tuberculosis of the lungs have been most useful in cases with little or no physical signs, in those with complications, such as bronchitis or emphysema which mask the tuberculosis, and to test lungs when a known tuberculous focus exists elsewhere. In pneumonia the signs are dense opacity of part or whole of lobe, restriction of diaphragm on affected side or sides, displacement of heart away from affected side, accompanied by dilatation. For a considerable time after the crisis, the affected lobe is somewhat opaque and the diaphragm's movements are impeded. Pleurisy also leaves signs of restricted movement. In pleurisy with effusion, the contour of the diaphragm is partly or wholly obscured, the heart shadow is displaced away from the fluid, and the lung is more opaque, owing to compression. In an encysted pleurisy the shadow is stationary, no matter what be the position of the patient. Interlobular effusion is readily recognized. In pneumothorax the pleural space filled with air is brighter than the normal side. Also in emphysema the lung is brighter. Intrathoracic tumors, malignant growths of lung, pleura, or mediastinal glands, bronchial tuberculous glands, and some cases of esophageal cancer are visible. Aneurism of the aorta shows larger than it can be percussed, as does also dilated heart. Dilatation of an auricle can be distinguished from that of a ventricle. Dilatation of the esophagus at certain levels and the shape of a distended stomach may be observed after a large dose of bismuth subnitrate.

Carcinoma and Skin Changes.—In the Deutsche medicinische Wochenschrift, 1900, No. 30, E. HOLLANDER published a paper entitled "Contributions to the Early Diagnosis of Intestinal Cancer (Hereditary Taints and Changes in the Skin)," stating that these two elements often give premonitory signs of the growth, even when that is not palpable. These early pathognomonic skin changes are of value not only in intestinal but also in other internal cancers. Chief among them he considered the small angiomata which he describes as multiple, bright-red, pin-head to pea-size, prominent above and within healthy skin-zones, and usually isolated. They are a transition between small subcutaneous capillary hemorrhages and small aneurisms (capillary aneurisms), but differ from these in that pressure with the fingers or under a piece of glass does not readily blanch them. Only pronounced effort will do this. Whether or not such cutaneous manifestations can rise in perfect health during the atrophic changes of advancing life is of course a question still open for settlement. He has found them in well-nourished patients and in the ordinarily fattest parts of the body, but with a constancy and quantity in the presence of cancer to be certainly significant. These principles he has meanwhile been attempting to verify and gives the following report (C'blatt f. Chir., 1902, No. 17): Leser has been working in the same field and recently published a report of his results in the Münchener med. Wochenschrift, 1901, No. 51, but omitted to make note of any of the other early symptoms except the angioma described by Holländer. These other two symptoms are the development of small rootlets and of pigmentations. It is in point of these three symptoms in fact that the premonitory significance of cancer consists. So far as the establishment of rootlets is concerned it is well known that they often occur among patients operated on for cancer. This dissemination of many flat rootlets and roots which appear at first like unhealthy conditions are in reality only pigmented enlargements of the sebaceous glands. Even these appear often enough among healthy patients in late life, but when their presence is manifest in youth and cannot otherwise be explained it certainly suggests an epithelial neoplasm. It is also known that these seborrheal rootlets may themselves give a tendency toward the development of cancer. The third symptom is pigmentation, which really appears rather constantly in the course of a cancer even when this is in the intestinal tract. The phenomenon seems to depend upon the intensity and extent and consists of flat pigmentations which may extend over large areas of the body. Although a single spot may closely resemble an ordinary freckle it is distinguished from it by its tendency to spread and to invade chiefly the parts of the body ordinarily covered by clothing from which freckles, it is well known, are almost always absent. The shade of color is also dark and the outline of the patch is more irregular than with freckles. Such are often seen in the neighborhood of a cancer, for example, about the gluteal region in cancer of the rectum. If these pigmentations are present Holländer thinks that they almost always indicate a cancer and are really more important than the other two symptoms. It is now two years since he called attention to these two facts and in that interval he has had abundant opportunity to verify his first claims.

Pleurisy with Effusion.—The treatment of this really common medical condition ought not to be a matter of the slightest dispute and probably would not be if it were not for the elements of doubt in the all important question of recognizing the cause and making treatment reach both the cause and the disease when possible. G. R. Murray (Lancet, May 24, 1902) says that all cases of acute pleurisy with effusion require rest in bed for limiting the inflammation as far as possible; hot applications of linseed or linseed and mustard poultices, belladonna fomentations, etc., for pain; strapping of the affected side for limiting respiratory movements and thereby decreasing discomfort; leeches, now often discarded, but really useful for decreasing local congestion. When exudation appears the surfaces of the pleura separate and the pain decreases. As soon as this occurs it is important to give a saline aperient like magnesium sulphate or sodium sulphate in large doses each morning for a number of mornings. Sodium salicylate, 20 grains three times a day, is often valuable and it has been found in large quantity in the effusion itself on chemical examination. After the acute part of the attack is over at the end of the first seven or ten days iodine is of service in aiding the absorption of the fluid by the lymphatics—tincture of iodine in 5-drop doses, iodide of potash in 5 to 10-grain doses, iodoform in half from ½- to 1-grain doses. Oleate of mercury (10 per cent.) may be rubbed into the affected side each day. Hays' method of restricting the patient to half a pint of fluid in twenty-four hours while from one-half to one and a half ounces of salts in concentrated form are given each morning an hour before breakfast is highly recommended by Osler. The question of aspiration is very important. Under certain conditions it should be done without delay. In all large effusions at any stage with dulness all over one side of the back of the chest and up to the clavicle in front, aspiration should be done at once. It should never really be deferred so long, as it is better to remove some of the fluid as soon as dulness extends above the level of the fourth rib in the nipple line in front. In these large effusions delay is dangerous as sudden death sometimes occurs. Physical signs, however, do not always indicate the amount of fluid which is present, so that in cases in which the area of dulness is less than that just indicated immediate aspiration is required if there be marked dyspnea on slight exertion, cyanosis, palpitation, irregularity in the pulse or signs of edema in the opposite lung. In cases in which the effusion is moderate in amount and produces no urgent symptoms there is no necessity for removing it during the first week or ten days. A moderate effusion is probably useful in the early stages of an acute attack of pleurisy, as it separates the two layers of the pleura, allows the lung to retract and lessens respiratory movements. As a result of this the inflamed membrane is kept at rest as much as possible and the two surfaces are prevented from rubbing against each other and the pleura is placed under conditions which are favorable to recovery. If aspiration is carried out at this early stage, these favorable conditions are simply removed and the object is not accomplished because the fluid is apt to return. If after ten days there be no diminution in the effusion, recovery will be hastened by aspiration; if, on the other hand, absorption has already begun it is usually not required. After aspiration the patient should remain in bed for at least two or three days, and after that he may get up as soon as his general and local condition will allow. The after-treatment of a case of pleurisy with effusion is of great importance and is practically the same whether the fluid has been absorbed or removed by aspiration. The great object is to complete a re-expansion of the lung. Various forms of blowing machines and gymnastics, all of which are well known to the profession, have beeen devised and under proper use most of them are serviceable. That form must be selected which seems best suited to the patient's means and physical strength. As a rule frequently repeated gymnastics, in themselves comparatively light, are better than those which are less frequently used and in themselves comparatively severe.

Early Stages of Hepatic Cirrhosis.—There are a relatively large number of patients in whom a palpable, usually tender and enlarged liver can be demonstrated and whose symptoms are either those of neurasthenia, myalgia, mononeuritis, or most frequently, a gastro-intestinal disturbance. Billings (Jour. Am. Med. Assoc., June 7, 1902) finds that such conditions are usually found in the early stages of hepatic cirrhosis and that they disappear when the liver is restored to its normal size, consistence and sensation to touch. He presents a series of cases as probable ones of the primary stage of cirrhosis because the liver was palpable, enlarged and tender, there were no other causes of enlargement, and no evidences of portal obstruction. Out of 54 patients, 20 per cent. denied the use of alcohol; the remainder drank varying amounts. No other causes could be elicited. The majority were troubled with some disturbance of the digestive tract probably due to a catarrhal gastritis. In others were noted fermentative dyspepsia, muscular pains, neuritis, chronic bronchitis and pharyngitis, mild chronic diffuse nephritis, glycosuria. The author believes such symptoms are due to auto-intoxication as a result of an anatomical change in the liver structure and the latter would also intensify the toxemia of constipation and digestive disturbances. The improvement of symptoms coincident with changes in the liver was always striking. The treatment consisted of dieting, habits, hygiene, medication. The diet should be free from heavy meats, rich mixtures, greases, sweets, and little fluid should be taken with the meals. Alcohol is prohibited. Water is allowed on rising and three hours after meals. Plenty of out-door exercise should be taken. The bowels should be kept open with saline in hot water. Mistura R. & S. with tr. nux vomica or hydrochloric acid may also be given. Many cases are benefited by muriate of ammonia, in 10-grain doses.

Blood-count in Variola and Varicella.—The analysis of the results of numerous observations showed to E. WEILL and A. DECOS (Jour. de Physiol. et de Pathol. Gén., May 15, 1902) that varicella does not present any profound modifications in the cellular elements of the blood, differing in this respect from variola. In the latter disease the blood has the following features: The red blood-cells are diminished in number and nucleated red-blood cells are almost always to be found. There is a constant hyperleucocytosis. The polymorphonuclear leucocytes are diminished in number and the mononuclear leucocytes are increased. There is an augmentation in the number of the large mononuclear leucocytes with pale nucleus. Myelocytes are always present, and in a marked proportion. In contrast to the distinct changes in the blood of variola, the blood of varicella shows the following characteristics: The number of red blood-cells is normal and there are no nucleated red blood-cells. There is little or no leucocytosis. The polymorphonuclear leucocytes are normal or slightly increased, while the mononuclear variety are normal or slightly diminished. The large mononuclear leucocytes with pale nuclei are normal or even diminished in number. Myelocytes are absent. The authors conclude from the above observations that the blood-count in varicella differs markedly from that in variola, and that the examination of the blood is of eminent value in the diagnosis of these two affections, particularly when very difficult in the beginning of the disease.

Enteroptosis and Its Costal Signs.—The presence of a movable tenth rib was advanced some years ago as a pathological sign of certain congenital stigmata attendant upon well-marked neurasthenic and anatomical conditions. This theory has not met with universal belief but its author, STILLER of Budapest (Deut. med. Woch., May 29, 1902) has lately refuted many of the arguments of his critics and from his further studies advances the following conclusions: He believes that this sign is of great value in differentiating organic from functional dyspepsias. It is also a certain sign of neurasthenia, especially of the dyspeptic variety, and stamps it as a congenital affair. To the gynecologist it affords a means of differentiating a mechanical ptosis due to relaxed abdominal parietes from a congenital enteroptosis, and shows that uterine deviations are merely part of a general disorder, which in itself causes the manifold nervous and dyspeptic symptoms usually ascribed to the displacement of the womb. The author also considers this sign of prophylactic moment to the pediatrist, who may thus recognize the prospective neurasthenic and by proper management assure a better prognosis for the future.

The Significance of Splashing-sounds in the Stomach.—A number of recent writers have expressed the opinion that splashing-sounds produced in the stomach are of real diagnostic worth. Stiller regards such sounds as definitely pointing to gastric atony, no matter what other symptoms are present or absent; Kuttner interprets such sounds, if heard during the normal digestion period, as indicative of atony, and if heard long after eating, as evidence of motor insufficiency. H. ELSNER (Berlin klin Woch., June 2, 1902) disagrees with both these authors, and also criticizes the view of Schüle, who ascribes stomach-splashing to neurasthenia. Selecting 26 women with perfectly normal digestion, Elsner undertook to ascertain whether loud splashing sounds could be elicited (1) with a small quantity of fluid present in the stomach, and (2) several hours after the ingestion of food. In 10 cases out of 26 positive results were obtained. Elsner now declares (1) that splashing sounds are not a pathological symptom, and (2) that Stiller's hypothesis of gastric atony is unfounded. Elsner furthermore quotes Rose, who looked for splashing-sounds in 100 patients. In 70 cases the sounds were present, while in 33 of these cases there was no gastric complaint. Elsner remarks that in practice the physician who accepts splashing-sounds as an evidence of gastric atony and who prescribes limitation of diet for no better reason, will often commit a grave injustice on his patient.

Acute Ascending Paralysis in Basedow's Disease.—Charcot first called attention to the paralysis of the extremities occurring in Basedow's disease. In his case a sudden giving away of the legs was the first symptom of paraplegia. Complete paraplegia may occur without disturbance of sensation, without weakness of the bladder or muscular atrophy. The patellar reflex is diminished or lost. The most complete record of such cases is that of Mackenzie. In the German literature comparatively few instances are found. M. ROSENFELD (Berl. klin. Woch., June 9, 1902) describes a case in which the cachectic period of the disease was ushered in with an acute ascending paralysis which followed a course similar to that of Landry's disease. The patient had been ill for two years. Exophthalmos and extreme nervousness had been present for a year, but the patient followed his occupation without interruption. On June 12th headache and nausea in the morning were followed in the afternoon by lumbar pains and a sense of weight in the lower extremities. The following day the pain and weakness increased and compelled a cessation of work. There was no fever. The sensorium was normal, as were also the cranial nerves and upper extremities. Walking and standing were impossible. The right limb was absolutely powerless; the patellar reflex was wanting. The left leg could be slightly moved and a slight reflex was obtainable on this side. The bladder and rectum were normal. The chief subjective complaint was lumbar pain radiating to the extremities. A few hours later the patient was unable to sit erect and could move his arms only with great difficulty. Before night the arms were paralyzed and the head could not be moved; slight motion was present in the fingers; respiration continued normal, but the bladder was paralyzed. There was no loss of consciousness. The following day voluntary motion in the extremities returned. A rapid loss of weight followed this attack and was accompanied by an accentuation of all the ordinary symptoms of Basedow's disease; a permanent loss of muscular power remained. On two subsequent occasions similar attacks occurred, but were not so severe as the first. Stigmata hysterica were entirely lacking. On various grounds hysteria can be excluded; the prodromata, the severe collapse at the beginning of the paralytic attack, the gradual ascending paralysis, the disappearance of the right patellar reflex during the paroxysm and the fact that subsequently there remained a slight paresis of the right leg with diminished reflex, all speak against hysteria.

Aids to the Diagnosis of Tuberculosis.—It is not to be denied that despite the many physical, microscopical and bacteriological methods which can be applied to the human body, the diagnosis of tuberculosis is often reached only with considerable difficulty. A. CASINI (Wien. med. Blät., May 29, 1902) reviews the various means at one's disposal and mentions as the oldest of the more modern the injecting of suspicious material into the peritoneum of guinea-pigs. Excellent as is this method, it is troublesome, not always successful and requires too much time. The microscopical examination for a tubercle bacilli is much more satisfactory, but also frequently negative. Three other more recent methods may then be employed: The test with Koch's tuberculin, serodiagnosis and cytodiagnosis. Serodiagnosis depends upon an agglutination of a homogeneous culture of tubercle bacilli by the serum of the suspected patient; unfortunately the serum of persons afflicted with a number of other diseases and even of healthy individuals, sometimes gives the same reaction. By cytodiagnosis is meant the preponderance of lymphocytes in exudates; it is especially valuable in the examination of doubtful pleurisies.

Carcinosis of the Central Nervous System.—The central nervous system is rarely invaded by carcinomata; when they do occur, they are generally metastatic in nature. The course is generally rapid according to E. SIEFERT (Münch. med. Woch., May 20, 1902) and the brain is more often involved than the cord. Generally situated at the border between white and gray matter, the metastases vary considerably in number; they rarely exceed the size of a cherry and remain sharply demarcated from the surrounding tissues, though it is possible that they may be entirely overlooked at autopsy. Pressure symptoms do not occur, since the growth is one by substitution. With the invasion of the pia, the subarachnoid spaces will soon suffer and increased growth is invariably noticed since here less resistance is offered. In the vertebral canal the tumor presents the shape of an irregular, cylindrical tube with its strongest development in the dorsal region especially at the point of exit of the posterior nerve-roots. Inflammatory processes and hemorrhages are always present and may form the predominant pathological lesion. The last stage is that of an erosion of the nerve-substance. It follows that the course is very rapid, extending over many weeks, with symptoms partly mechanical, partly toxic. The diagnosis is apt to be difficult unless the primary tumor, usually situated in the lungs, is apparent. An advanced age, rapidly-developing cachexia, increasing apathy, delirium alternating with lucid intervals, disturbances of speech reminding one of paresis, absence of choked disk, pain and stiffness of the neck, focal symptoms, such as pains and bladder disturbances, are characteristic and should prevent mistakes.

Reflex Spasm Caused by Ascaris.—Attention is called by J. P. NAAB (Münch. med. Woch., May 13, 1902) to the possibility of mistaking certain cases of ascaris for more serious disorders. A child may be seized suddenly with convulsions which soon are followed by coma, and a provisional diagnosis of meningitis may be made until the cause is discovered in the stools and rapid recovery takes place after santonin and calomel. The number of worms found does not seem to govern the severity of the symptoms since in quite severe cases only a few were present. An excessive secretion of saliva seems to be a valuable symptom from a diagnostic point.

Douches and Irrigants.—A douche or irrigant has for its object mechanical removal of morbid secretions, accumulations and foreign bodies, antisepsis and diagnosis. A proper relation between the means and the object must be subserved in order that suitable results may be obtained. Unfortunately such relation is not a matter of common knowledge among practitioners. W. WINGRAVE (Lancet, May 17, 1902) discusses in a very able manner this really important subject. He makes the essentials of douches the following: (1) The solution should always be a solvent of the substance to be removed. (2) The reagent should be itself readily soluble in water and in a clear solution. (3) It should be non-irritating to mucous membranes and sensitive surfaces. (4) To insure thoroughness it should possess the power of penetrating the surface of tissues. (5) It should be chemically compatible with the most effective antiseptics. (6) It should be economical in cost and readily available everywhere. Of these elements the most important is that of dissolving the discharge. There are many solutions in use which have no such action, but really precipitate and harden the substance which they are intended to remove. Therefore a knowledge of the nature and composition of discharges must be possessed; a brief survey of this question is the following: They are either (1) catarrhal, (2) serous, (3) purulent, (4) ceruminous and cholesteatomatous, or (5) fibrinous and hemorrhagic. Catarrhal products as commonly met with in the nose, nasopharynx, and less frequently in the ear, may be viscid or inspissated even into crusts. From mucosæ the fluid consists of an alkaline solution of mucin, globulin, serum albumin in proportions varying with the intensity and nature of the morbid process, mechanically suspended epithelial cells in varying degrees of mucoid degeneration and leucocytes and various bacteria. Of the organic elements mucin is readily soluble in weak alkaline solutions of bicarbonate of sodium (.5 to 1 per cent.), but insoluble in acids, while the cells and serum globulin are soluble in weak solutions of neutral salts, together with the nucleo-albumins of the cells. Albumin itself is soluble in water. The serous discharges rarely call for special removal except when localized. In them globulin occurs in greater proportion than mucin, therefore neutral saline solutions should be selected. Pus will obviously vary according to the conditions of production and duration of retention. It may be thin, thick, solid, caseous, sweet or foul, etc. Hoppe Seyler gives in 100 parts of dry pus, proteids 16, nuclein 34, fats and lecithin 14, cholesterin 7, cerebrin 5, extractives 4, and insoluble substances 20. Halliburton gives nucleo-albumin, cell-globulin, albumoses, and peptones as the chief constituents. In the fluid part serum globulin with small quantities of serum albumin and albumoses will be found while the organized solid or cell-elements, like leucocytes, connective-tissue fragments, etc., will yield nucleo-albumin, cell-globulin, and nuclein, also fats, lecithin, cholesterin, etc., in varying degrees of fatty or other degeneration. All these are soluble in weak solutions of either neutral or alkaline salts respectively. Cerumen varies from a thick molasses-like consistence to that of a firm plug more or less mixed with epithelial cells, hairs, parasites, dust and other matter. Being fatty in nature it is readily soluble in alkaline salts, but as the contact with an irrigant is so short and the plug so dense, softening by means of a strong alkaline solution, preferably in glycerin, is often a preliminary to the douche. Cholesteatomata consist of closely-packed, laminated, squamous epithelium with fatty granules and cholesterin crystals. The cells will yield much keratin and nuclein. Both with the fat are soluble in alkalies. Sometimes, as in middle-ear suppuration, the epithelium is mixed with pus; if so, the neutral salts also should be used in combination. Plastic exudation consisting chiefly of fibrin entangling leucocytes in its meshes is extremely difficult of solution and rarely admits of more than a softening process in neutral and alkaline salt solutions, such as sodium sulphate, calcic hydrate, etc. This applies also to blood-clot, which is however less dense and frequently much more readily removed by similar irrigants. Knowing the nature of the discharge and the solvents of its chief constituents there should be little difficulty in selecting an efficient irrigant for both chemical and mechanical action. The following will be of advantage as showing solvents and precipitants:

Solvents: Sodium sulphate (from 1 to 2 per cent.); potassium (from 1 to 2 per cent.); magnesium (from 1 to 2 per cent.); ammonium (from 1 to 2 per cent.);

sodium bicarbonate; sodium chloride; sodium hydrate; sodium biborate; sodium sulpho-carbolate; calcium chloride; calcium hydrate; potassium hydrate; potassium carbonate; chinosol.

Precipitants: Water (except albumin); mercury biniodide; mercury perchloride; alum; zinc chloride; zinc sulphate; zinc permanganate; potassium permanganate; hydrogen peroxide; formalin; carbolic acid; boric acid; liquor sodii chlor.; liquor carbonis detergens; izal; alcohol (fats excepted); sulphurous acid.

As of general service he recommends the following formulæ:

(1) Sodium sulphate, from one and a half to three drams; water to one pint (20 fluid ounces), from 1 to 2 per cent. (2) Sodium sulphate, from one and a half to three drams; sodium bicarbonate, 40 grains; water to one pint. (3) Sodium sulphate, from one and a half to three drams; borax, 40 grains; water to one pint. (4) Sodium sulphate, from one and a half to three drams; sodium bicarbonate, 40 grains; glycerin of carbolic acid, 45 drops; water to one pint. [Note: Instead of glycerin of carbolic, absolute phenol, 9 grains or No. 1 carbolic acid may be used. Heat to 165° F.] (5) Borax, 40 grains; bicarbonate of soda, 40 grains; glycerin of carbolic acid, 45 drops; water to one pint (diluted Dobell's solution). (6) Sodium sulphate, one and a half drams; chinosol, 10 grains; water to one pint. (7) Sodium sulphate, one and a half drams; sanitas, three fluid drams; water to one pint. (8) Sodium sulphate, one and a half drams; perchloride of mercury, two grains; water to one pint (1 in 5,000). (9) Sodium sulphate, one and a half drams; red iodide of mercury, two grains; sodium iodide, two grains; water to one pint. (10) Sodium sulphate, one and a half drams; potassium permanganate, two grains; water to one pint. (11) Sodium bicarbonate, 40 grains; potassium permanganate, two grains; water to one pint. [Note: Borax (40 grains) may be used instead of sodium bicarbonate.] (12) Solution of calcium chloride (P.B.) six fluid drams; water to one pint. [Notes: The pure exsiccated sulphate of sodium should always be used in preference to the ordinary crystalline salt. Bicarbonate is preferable to carbonate of sodium. Hot water whenever convenient should be employed to make the solutions. Solutions of phenol should be heated to 155° F. No. 1 is a simple irrigant for pus; Nos. 2 and 3, when mucus is present or when the discharge is inspissated; Nos. 4, 5, 10, and 11 for inspissated fetid mucus or "crusts;" Nos. 6, 8, and 9 as antiseptics, and No. 7 and 10 as deodorants. No. 12 is chiefly employed for its hemostatic property.] In addition to purely mechanical use a douche may be required for antiseptic purposes. Unfortunately the most valuable antiseptics are precipitants of proteids and therefore not thorough irrigants; consequently, it is more often expedient to irrigate first with the solvent and to use the antiseptic afterward, as in a case of suppurative middle-ear disease. This need not, however, always be done, since biniodide of mercury, phenol, chinosol, and many powerful antiseptics are not only miscible in pure sodium sulphate, but when mixed do not precipitate proteids so readily as would a plain solution of the antiseptic. This is a property of no slight importance. Similarly potassium permanganate may be combined with sodium bicarbonate or biborate. Chinosol mixed with sodium sulphate affords not only a clear solution, but one of high sulphate or antiseptic properties. Its great disadvantage is cost. He protests against the use of popular formulæ which combine thymol, eucalyptol, menthol, and other aromatics with various inappropriate salts as antiseptic douches, because they are not only extremely irritating to mucosæ, especially the nasal, but their solvent and antiseptic properties are matters of doubt. They are really only deoderants. In atrophic rhinitis a very good, economical and active douche is ordinary sea-water. It should be boiled well, decanted and used warm at a temperature of from 60 to 70° F. A pinch of sodium bicarbonate to the pint may be added when the crusts are very firmly adherent. When employed for diagnosis, douches must be transparent and colorless, hence creolin, izal, permanganate, etc., are to be avoided. It is also inadvisable to employ any precipitant like bichloride of mercury for exploratory irrigation. He adds a word as to the method of employing and the special instruments for douching. The special purpose of the douche and the question of whether it is for use by surgeon or patient are important factors. This distinction is by no means unimportant, because a patient rarely knows the possibility of infection and the importance of perfect cleanliness. In this case he is perhaps not entirely to blame because the ordinary apparatus at his disposal, for example, the rubber ball, glass or metal syringe is without doubt the most dangerous weapon ever employed. An ocular, olfactory, or bacteriological examination of the interior of any such instrument would emphasize this question greatly. The cause of this is obvious, because no apparatus filled at the mouth which comes into contact with a dirty wound can escape contamination of its interior, except through special care, which cannot be expected of an ordinary patient. In the case of aural and nasal douches the application to the nozzle of a short piece of rubber tubing, which can be renewed and removed and sterilized greatly reduces the risk of infection or injury during use. The ordinary hydrostatic douche is not liable to infection in this particular way, but is a clumsy instrument and not advised for delicate, deliberate work in aural cleansing, since it admits of but slight variation in volume and pressure. Grant's modification of the piston syringe is thoroughly efficient in guarding against infection by being fitted with a two-way cock which admits of filling through a separate channel. It is very difficult, however, for the patient to use it himself. The aseptic douche of the author is much more efficient for the patient to use; it closely resembles the well-known Davidson hand-ball syringe, and gives force, direction, and volume to fluid directly under control, inlet and outlet valves compelling it to be filled only from the distal end. It is wide in application, especially valuable in ear diseases which require great care in auto-irrigation and in those forms of rhinitis demanding a copious douche. He recommends in strong terms the nasal douche-cup, only known in this country as the Bermingham, for all cases of nasal disease in which a small quantity of irrigating fluid is necessary.

PATHOLOGY AND BACTERIOLOGY.

Albumin in Urine.—It is generally accepted that the nitric-acid test is perhaps the most reliable of any in determining the presence of small amounts of albumin in urine. A new method of applying this test to save time is described by L. N. BOSTON (N. Y. Med. Jour., May 24, 1902). A glass pipette is used and the urine allowed to run up the tube one or two inches. The index finger is then placed on the top and the urine washed and dried off the outside of the tube. It is then inserted into nitric acid and the index finger partially removed to allow the acid to flow up the tube. The presence of albumin always causes a white ring to form at the line of contact. Globulin, albumoses and peptones may also cause a small ring at the zone of contact, but they are seldom present. If suspected they may be tested for by boiling the urine. A cloud appears just before the boiling-point is reached, but disappears when boiling occurs. Urates may cause a similar ring. Similar experiments have been tried with twelve other reagents which have been recommended for detecting albumin in urine, but the results were never so satisfactory as when nitric acid alone was used.

The Intestinal Toxins, Indol and Skatol.—This latter toxin possesses almost the same attributes as does the former, therefore, J. LE CALVÉ (Archives Générales de Médecine, May, 1902) largely confined his experimental study to indol. It is found in cultures of the microbes of hen-cholera, septicemia of rabbits, tetanus and cholera, and very abundantly in cultures of the colon bacillus. It is produced normally in the intestine and increases with intestinal putrefaction, but in the liver is in great part changed to a less toxic substance, indican or indoxysulphate of potassium, which is eliminated in the urine. The part not transformed by the liver is eliminated by the feces. In many conditions, typhoid fever, tuberculosis, digestive troubles, uremia, etc., indol is absorbed in excess, therefore its effects should be well understood. Five minutes after the hypodermic injection of one centigram of indol dissolved in alcohol, a rabbit becomes dejected, uneasy, retires to a corner, and curls himself up, dull and somnolent. His body trembles, respiration is at first increased, then slowed to less than half the normal rate, remaining thus several hours, and may even be Cheyne-Stokes in type. The pulse and blood-pressure are slightly diminished, the temperature drops one degree, and there is usually insensitiveness to stimulus, though occasionally there is hyperesthesia. The urine contains much indican but never albumin. Animals killed at different periods after injection showed a special action on the nerve-centers and the kidneys. The medulla oblongata is affected first by an edema, which soon involves the cerebrum with increase of cerebrospinal fluid and dilatation of the ventricles. The kidney is much congested and may be edematous. Injections continued every day for several weeks never caused death, and affected the animal only for a few hours following the injection. A slight increase of the surrounding temperature is always accompanied by augmentation of the symptoms, the animal appearing as if sunstruck, yet a hot bath quickly restores to the normal. The authors believe that the poison especially attacks the vasomotor centers, but in ordinary conditions may be considered a physiological rather than a toxic agent. Edema of the brain and spinal cord, pia mater, and of the extremities results from the vasomotor paralysis, and all the symptoms are secondary to this. The vasomotor effects are identical with those resulting from exposure to cold. From their experiments the authors recommend the hot bath in sunstroke, in active and passive congestions, edema of the lungs, kidney affections and in hyperemia of the nervous system.

Liquid Air as a Freezing Medium in the Laboratory.—The extreme cold of liquid air makes it impossible to use it in medicine and surgery upon the living subject except when destruction of tissue is desired. Even here the actual cautery is far preferable, because it is much more thoroughly under control. In the laboratory, however, as a freezing medium liquid air is no doubt of service. The following notes upon this subject are offered by W. H. B. STODDARD (Lancet, May 17, 1902). Briefly, liquid air is obtained by mechanical compression of ordinary atmospheric air to one eighth-hundredth of its volume, and by removal of the impurities by fractional solidification. It is a fluid like water in appearance, but of lower specific gravity, boils at a temperature of —312° F. and therefore at a temperature of the atmosphere when placed in ordinary vessels, but evaporates quite slowly when stored in the vacuum flasks used by the manufacturers. An untouched gallon evaporates from such storage-flask in about six weeks. In the ordinary constant use in the laboratory it will last about two weeks. Liquid air is therefore very much cheaper than ether for laboratory purposes, and acts much more readily, because about 20 to 30 compressions of the India rubber bulb are always sufficient to freeze the gum, and the tissue remains frozen much longer. It has not the unpleasant smell of ether; instead of that, pure air issues from the microtome. He has had an opportunity of inspecting the impurities removed from the atmosphere in the process of manufacture of liquid air and has observed that the stench from these is worse than that from the worst London fog. He therefore regards this supply of pure air as most important by making pathological work more pleasant and healthful. While working with liquid air the best method of ventilation for the laboratory is to shut all the doors and windows and to be satisfied with the pure air issuing from the microtome. It is no exaggeration to say that after a morning's work in the laboratory with liquid air one feels as if he had had a trip in the country. The vacuum-flasks in which the liquid air is stored are made of glass, each consisting practically of two flasks, one inside the other with a vacuum between the two. For use with a Cathcart microtome a support for one of the flasks is a necessary attachment; this consists of a wire loop sufficiently large to support the body of the flask and then bent at right angles twice, so that while the upper end is fastened to the base of the microtome the loop stands horizontally, sufficiently below the level of the microtome to hold the flask and allow the exit from it into the microtome to be horizontal. This exit is a simple nozzle fitted into the side of the cylinder, playing on the under surface of the plate. An India-rubber cork with two holes is fitted into the vacuum flask. Through one of these holes a glass tube passes from the vapor above the liquid air to a piece of India-rubber tubing which constitutes the exit. This India-rubber tube freezes hard while the microtome is in use and thus forms another support for the flask. Through the other hole in the cork there passes another piece of glass tubing, one end of which dips below the surface of the liquid air while to the other is attached a valvular India-rubber bulb. The tube is expanded where it dips into the liquid air. The whole apparatus is worked on the same principal as a Junker chloroform inhaler. By means of the India-rubber bulb atmospheric air is blown through the liquid air. The liquid air is vaporized and plays on the under surface of the plate of the microtome. As the atmospheric air passes into the liquid air the moisture from the former condenses on the inner surface of the glass tube, which soon becomes blocked with ice unless it be dilated.

Sensibilizing Substances.—The sensibilizing substances (Immunkörper) in the blood of typhoid-fever patients have been studied by GEORGIEVSKY (Bolnichnaja Gazeta Botkina, N. 17, 1902). In order to detect these substances he used Bordet-Gengon method, which consists in the following: Blood-serum, in which the Immunkörper are to be looked for is warmed to 50° C. to decompose the alexins; then there is added to it blood-serum of another animal which is lytic for some erythrocytes; to this mixture is added an emulsion of typhoid bacilli. If the first blood-serum contain typhoid Immunkörper, the typhoid emulsion will be sensibilized and will absorb the alexins from the second blood-serum, which will consequently lose the power to solve the erythrocytes which were further added to the mixture, while if the first blood-serum does not contain any typhoid Immunkörper the alexins of the second blood-serum will not be used up by the typhoid bacilli, and the erythrocytes subsequently added to the mixture will be solved. With this method the author obtained highly interesting results. As long as the fever lasts the blood-serum of the patient contains no Immunkörper, but they begin to appear as soon as the temperature becomes normal. There is no relation between the appearance of these substances and the agglutinating properties of the serum.

OBSTETRICS AND GYNECOLOGY.

Tubal Gestation.—For the last twenty years, except for the recent tendency to something like expectant treatment in some cases, the diagnosis of tubal pregnancy has been considered to indicate abdominal section, says F. H. CHAMPNEYS (Jour. of Obstet. and Gyn. Brit. Empire, June, 1902). In a detail of a series of 75 cases, 34 were left alone and recovered, a proportion of 45.3 per cent., and to these should be added those in which the cyst was evacuated by vaginal section in order to get rid of a tumor before the patient was discharged. These cases numbered 11, and, added to the 34 which were left alone throughout and recovered, reach a total of 45, or 60 per cent. of the total number. Ruptured tubal gestation (including tubal mole, etc.) must always be a dangerous affection. The question whether in a given case expectant treatment is safer must depend upon several considerations. Distance, for example, comes in. If the patient be in some inaccessible place, and can not be watched it may be safer to do abdominal section. If there have been repeated attacks, the presumption is that there may be others. Errors in judgment may occur; our present means of prognosis in these cases are far from complete, but it must be remembered that abdominal section for ruptured tubal gestation is in itself a perilous proceeding.

Infected Ovarian Cysts.—Certain organisms have been definitely identified in suppurating ovarian cysts, such as the streptococci, staphylococci, colon bacillus, the gas-producing bacillus, the tubercle and the typhoid bacillus, says REUBEN PETERSON (Amer. Jour. of Obstet. and Dis. of Women and Children, June, 1902). The organisms may gain access to the cysts in various ways: They may pass through the cyst-wall either from the peritoneal cavity or from some other adherent viscus rich in germs; through the circulation, either directly through the arterial circulation of the pedicle, or by way of the venous circulation after the formation of a phlebitis, a retrograde infection. Infection may take place by way of the lymphatics. Germs may be introduced directly into the interior of the cyst by aspiration or puncture through the abdominal wall or vagina. Because of their small size and slow growth, dermoid cysts are more liable to traumatic changes, and to infection. When the pedicle of an ovarian cyst is twisted and the circulation completely shut off, the conditions would seem most favorable for subsequent infection of the cyst contents. The natural history of suppurating ovarian cysts, especially dermoids, shows that they are prone to empty into some neighboring viscus, rectum, vagina, bladder, or even the ureter. The author's conclusions are as follows: (1) Suppuration of an ovarian cyst is a most serious complication and is productive of a high mortality, with or without operation. (2) The contents of the cyst should be carefully examined bacteriologically and microscopically, in order to shed light upon the etiology and pathology of the condition. (3) There is good reason for the supposition that certain ovarian cysts reported as suppurating did not in reality contain pus, but the pathological changes were described from their gross appearance. (4) In cases in which the cyst has been shown definitely to contain pathogenic bacteria, the majority of patients operated upon by the abdominal route have died of general peritonitis. (5) Hence better results may be expected from vaginal incision and drainage in similar cases when the suppurating cyst does not reach much above the limits of the pelvis, since liability of contaminating the pelvic peritoneum will be greatly diminished.

The Term, Tubal Abortion.—It is but a dozen years since Lawson Tait in his dogmatic manner, declared, "No authentic description exists of an unruptured tube pregnancy." J. WESLEY BOVÉE (Amer. Jour. of Obstet. and Dis. of Women and Children, June, 1902) is sure that the abdominal surgeon can now readily recognize this condition. No authentic case can be found in which the ovum has been forced from the tube through the isthmus into the uterus. On the other hand, cases are met with in which the development of the ovum has been interrupted and a portion or all of it has been expelled through the distal end of the tube into the peritoneal cavity. The author thinks that it would not seem productive of harm or confusion to apply to this condition the term "tubal abortion," particularly as so-called technical tubal abortion is not known. The term abortion was employed long before ectopic pregnancy became a subject of great study and abdominal surgery such every day work. It was applied to interrupted normal pregnancy by expulsion of conception products from the uterus by the same route as in normal parturition, and to this day this usage is in vogue. It is also applied to the premature ending of processes other than gestation and in a freer manner. There seems to be no law for this application of the term in connection with gestation other than usage, and, as the study of the tubal form has developed the fact that the tube as well as the uterus can empty itself of conception products, it would seem highly proper to apply the term "tubal abortion" to such processes without regard to the end of the tube through which it is emptied.

Puerperal Eclampsia.—The pathogenesis of puerperal eclampsia is still a *questio vexata* and must, therefore, be a subject of perennial interest until further investigation sheds light upon its dark places, says GEORGE T. HARRISON (Amer. Jour. of Obstet. and Dis. of Women and Children, June, 1902). In recent times observations have multiplied which tend to demonstrate with more and more certainty the toxic origin of eclampsia. The toxicity of the blood-serum forms, according to Chambrelent, an important criterion for an opinion as to the gravity of a case of eclampsia. It is more decisive for the prognosis than the degree of albuminuria and the number of the convulsive attacks. The toxic qualities of the fetal blood though not constantly, are frequently considerably increased. The urine of the pregnant woman is less poisonous than the urine-pregnated subject; the blood-serum, on the contrary, more poisonous. The serum of the eclamptic is more poisonous than that of the normal parturient woman; the toxic condition increases with the stage of convulsion. The urine of the eclamptic is always, at the time of the increased toxic condition of the blood-serum, less poisonous than normal urine. Ludwig and Savor assume that carbamic acid accumulates during pregnancy in consequence of the disturbance of the metabolism and causes the toxic condition of the organism. Massen thinks that the toxic substances are leucomaines. A number of observers have endeavored to demonstrate the bacterial origin of eclampsia, but so far without success. Veit and Olshausen hold that the eclamptic attack is determined by brain anemia. With reference to treatment too much emphasis can not be laid upon prophylaxis. If the prodromic symptoms are plain, and especially if the phenomena indicate a disturbance of renal function, the hot pack should be used and the patient put on a milk diet; at the same time one should not neglect to see that the bowels are performing their proper function. When eclampsia has broken out the indications are, first, to lower the excitability of the brain by narcotics; secondly, to cut off the effects of the centripetal irritants starting from the sexual organs by as speedy an ending of the labor as possible, consistent with safety to the mother organism; third, to counteract the effect of the toxemia by restoring the function of the kidneys as quickly as possible and by producing elimination through other channels.

Latent Hemorrhages during Pregnancy.—Hemorrhages during the latter portion of gestation form an interesting and not infrequent complication of pregnancy. J. A. DOLÉRIS (La Gynécologie, Apr. 15, 1902) reports two such cases. The first was a multipara in the seventh month. She was suddenly seized with a pain in the abdomen followed by a uterine hemorrhage. Five days later the patient went into labor and was delivered of a dead fetus. Following the birth of the child about a liter and a half of clotted blood came away. An examination of the placenta showed that the hemorrhage had been due to a spontaneous rupture of the circular sinus. The second case showed a large cystic tumor of the peri-abdominal region into which a bloody extravasation had taken place by probable rupture of its blood-vessels. This condition produced premature labor in the patient with expulsion of two dead fetuses. The patient was operated upon and the contents of the sac were evacuated with final recovery. Such conditions have taken place after trauma as in the case reported by Champetier de Rihes. Lepage also reported a case occurring in the fourth month of pregnancy.

The Prevention of Conception.—The use of various devices for the prevention of conception is not only a matter of sociological interest, but presents a medical aspect of great interest, as is shown in a paper by KOLISCHER (Medicine, June, 1902). The appliance used by the woman, the so-called occlusive pessary, is of most interest medically. It is sold in various modifications, but consists essentially of a firm rim enclosing a central diaphragm of soft rubber, which is expected to cover the external os. As a rule, such pessaries are inserted after the menstrual period, and left in position until the next menstrual flow. In a large number of women, their presence acts as an intense irritant to the vaginal epithelium, and sets up a copious catarrhal secretion. These secretions undergo decomposition when retained, and awaken the potential virulence not only of the ordinary parasitic germs in the vagina, but also of the latent gonococci. Thus arises either a nonspecific or a specific vaginitis, which is transferred in the same form to the urethra of the male. Not only this, but the entire upper genital tract may become secondarily involved. The author concludes that the use of soft-rubber occlusive pessaries is always a dangerous measure, especially if they be left in the vagina during the interval between two menstruations. If used at all, they should be removed at short intervals, and effective antiseptic douches employed.

Thyroidotherapy in Eclampsia.—It is well known that various morbid states follow any anatomical alteration in or changes in the function of the thyroid gland. Upon a number of various diseases and in particular convulsive effects thyroidotherapy has a very good effect. H. O. NICHOLSON (La sem. méd., May 21, 1902) has obtained excellent results in various cases of puerperal eclampsia, which he treated by rest in bed, pure milk diet, subcutaneous injections of morphine to the degree of controlling the convulsions, and then the regular administration of thyroid extract in doses of 0.30 grams, repeated if necessary every three or four hours. Under the influence of this medicine, together with proper diet and management, the symptoms of the disease, especially headache, albumin in the urine, edema, loss of vision, and the like, began to and steadily continued to disappear in a few days. According to this observer, the use of thyroid extract is of value as a means of preventing this phenomenon, especially in women who give a history of having had eclamptic seizures during previous pregnancies.

Trauma Sub Coitu.—This is a rare occurrence, but is of sufficient medicolegal importance to warrant consideration whenever cases are reported. Moreover, any effort to explain examples of it, which do not happen as crimes, should receive due heed. G. BOHNSTEDT (C'blatt f. Gynaek., 1902, No. 17) offers the following explanation which agrees with that given by Schaeffer. He assumes a cramp which takes place in the muscular tissue of the vagina and of that outside of the vagina, especially the pelvic floor, and results in a most vigorous and resistant tonic state of the entire region and is probably referable to neuropathic conditions. The suggestion that this neuropathic state might after all be the cause of such accidents was presented to him by the result of an attempt to suture the damage. During the operation precisely such a cramp or spasm took place and hindered the placing of the sutures to a marked degree. While it is not necessary to assume a basis in neurological pathology, it is possible to grant that such a spasm, no matter what its source may be, would certainly very largely account for this undesirable and usually unfortunate accident.

Malformed Fetus.—As matters of curiosity usually and of scientific interest occasionally malformations of the fetus deserve note. N. ELRINGTON (Lancet, May 17, 1902) describes the following case: The mother was a laborer's wife. The body of the child was well developed and the lower part of the face was normal for an ordinary full-time child. The frontal bones, however, were widely separated and flattened backward so as to be almost at right angles to the face. The eyes were very far apart and the eyelids protruded. The parietal bones were small and what would have been their upper margins were pointing almost directly backward. The occipital bone was represented by two small bony strips lying close to the posterior edges of the parietal bones. All the cervical and the upper five or six dorsal vertebræ were apparently wanting. The chin rested on the second piece of the sternum. The ears, which were abnormally large, lay in front of the shoulders. The back of the head and neck was occupied by a mass of freshly-formed blood-clot, which in one place had burst through the skin. There was no hair and the skin of the head was very thin. The labor occurred at full term and the mother was certain that the child was alive two hours before her pains began, which was only three hours before the child was born. He had to be content with an external examination and consequently cannot say what was the condition of the brain and spinal cord. There was nothing during the pregnancy out of the ordinary except an excessive amount of liquor amnii. He thinks that there is no doubt that the child died from the effect of pressure during birth. The presentation was somewhat bewildering, but the progress of the labor was rapid and the child was born with the chin presenting under the symphysis pubis without any difficulty. The arrangement of the cranial bones may have been artificially produced by a face presentation in a child with cranial bones not only very thin, but not developed sufficiently to stand the strain of pressure within the parturient canal.

Hemostasis of the Broad Ligament.—The almost universal employment of absorbable ligatures about the broad ligament is a protest against the retention of foreign bodies in the peritoneum and an admission that the less material one uses the better. In addition to ligatures the following mark the several stages of progression toward the ideal hemostasis, namely, the ecraseur, thermocautery, torsion, retention forceps, electrothermic forceps, and the angiotribe. Hemostasis should insure absolute security against hemorrhage, whether primary or secondary, protection against septic contamination, the least injury to the parts treated, and the absence of foreign bodies in the wound. By the use of the electrothermic forceps and the angiotribe it is possible to approach very nearly these ideal conditions. The former can be used only when electricity is at hand and is therefore available rarely except in hospital practice. The angiotribe is often imperfectly constructed, fails in some particular, is carelessly used and therefore does not give uniform results. H. P. NEWMAN (Annals of Surgery, June, 1902) states that his own experience with the angiotribe has been most satisfactory, without a single case of secondary hemorrhage. He has, however, reinforced its use with ligature in selected cases. If ligation *en masse* be done the ligature may loosen and slip, by shrinking of the stump, or the larger vessels may retract away from it. Individual ligation, on the other hand, may fail to secure all of the important vessels by mere accident, but of the two methods single the latter is to be preferred to the former. The method he employs is a clamp of his own design applied to the appendages of tumors with pedicles, to the root of the blood ligament, and directly across the pedicle of other tissues removed. When a large vessel is clamped he usually turns the instrument sufficiently to follow it and then secures that vessel by an individual ligature. Sometimes collateral branches are large enough to require individual attention. The best example of this is the ovarian artery in the broad ligament which may need tying more than once. The pressure of the clamp controls all oozing while these individual ligatures make bursting of the large vessels through the grayish tissue impossible. The advantages he claims are the following: (1) Complete and permanent hemostasis, with no possibility of the ligature slipping either off the end of the artery or of the stump. (2) Inability of the artery to contract and draw away from the grasp of the ligature and form hematoma or hematocele. (3) By the combined use of the angiotribe and ligature multiple thrombi are formed, plugging the vessels most securely. (4) There is no puckering up or massing together of broad ligament tissue to draw upon or displace other organs or structures. (5) No strangulated stump tissue remains to slough, granulate, and form adhesions. (6) The amount of foreign matter left in the wound is reduced to a minimum. (7) The rapidity of this method and its bloodlessness materially lessen the danger of postoperative shock. (8) Convalescence is eased materially and hastened to a marked degree.

THERAPEUTIC HINTS.

Chloral Hydrate as a Vesicant.—When a marked effect is rapidly required, chloral hydrate is better than cantharides and has none of its disadvantages. With children, next to iodine it is the counterirritant of choice. The blister will produce erythema, vesication or ulceration, as desired.—M. T. BRENNAN in Montreal Medical Journal, May, 1902.

Hyperchlorhydria.—All kinds of alkalies can be used in this affection. Calcined magnesia and magnesium ammonio-phosphate neutralize four times as much acid as does bicarbonate of sodium. The following are serviceable:

℞ Sodii bicarb.
Magnes. ust. ....aa. 20.0 (ʒv)

Sig: Half to one teaspoonful three times a day, two hours after meals. Or:

℞ Sodii bicarb........................20.0 (ʒv)
Magnes. ust.
Magnes. ammonio-phosph.aa.... 10.0 (ʒiiss)

Directions as above.

When constipation exists one may use:

℞ Magnes. ust.
Pulv. rhei.....................aa. 7.5 (ʒij)
Sod. carb. exsiccat.
Sodii bicarb.
Eleosacch. menth. pip..........aa. 15.0 (ʒiv)

Sig: Half to one teaspoonful three times daily, two hours after meals, in water or vichy.

The alkaline treatment can be continued for very long periods without any ill effects whatever. With sleeplessness, headaches, excitability, etc., one may prescribe:

℞ Stront. bromid...................12.0 (ʒiij)
Aq. menth. pip...................60.0 (ʒxv)

Sig: One teaspoonful in milk twice daily at meal time.

The bromides should not be given continuously for longer than a week. In protracted hyperchlorhydria the direct application of the electric current to the inside of the stomach is frequently of the greatest benefit. —M. EINHORN in "Diseases of the Stomach."

Habitual Constipation.—This condition should not be considered cured, writes I. BOAS (Diseases of the Intestines) until the bowels move regularly without any mechanical or medicinal co-operation, the diet being normal or nearly so. Children should early be taught to have a set time for their daily evacuations, and in them the habitual use of laxatives should be avoided. For adults Penzoldt's diet is applicable. It is as follows: 7 a.m., a glass of cold water; 8 a.m., a liberal breakfast with sweetened coffee, a good deal of butter, honey, and graham bread or pumpernickel, after which the patient should go to stool; 1 p.m., meal of meat, a good deal of vegetables, salad, stewed fruits, farinaceous food, half a bottle of light wine; 7 p.m., meat with a good deal of butter, graham bread, stewed fruit and beer; 10 p.m., fresh or stewed fruit before retiring. Buttermilk or Kefir, or a diet rich in carbohydrates may be sufficient without the above régime. Such a diet, though, is obviously not suitable in diabetes mellitus, glycosuria, obesity, gastric atony, hyperacidity, ulcer of the stomach, gastric dilatation, carcinoma of stomach or intestine and in flatulence. The glass of water in the morning with a pinch of salt added is excellent in itself. There are patients who are cured by absolute rest in bed after other means have failed. Yet, in general, exercise is a good thing, and especially that which works the abdominal muscles, such as rowing or lying down and raising the trunk to a sitting posture without the assistance of arms or legs. A powerful measure is the use of cold compresses, or alternate cold and hot sprays over the abdomen. The ether spray has been used in obstinate cases for a number of years. The continued use of laxatives is not necessarily harmful, many persons taking a simple pill for years. But if these laxatives be inadequate or occasion gastric or intestinal discomfort other means must be adopted. The state of the stomach, liver, etc., must be considered; for instance, calcined magnesia and Carlsbad salts are also antacids, and podophyllin and euonymin are cholagogues. In cases of flatulent colic small doses of opium will relieve the pain, and often promote an evacuation. Suppositories, enemata, etc., are useful only temporarily.

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THE CURABLE INSANE. WILL NEW YORK STATE DO ITS DUTY?

The burning burden of disgrace laid by the laity upon the sufferers from mental disease is in very large measure responsible for the incurability of many cases of insanity.

The misapprehension and profound ignorance of our fellow citizens, who cannot see that disease of the brain is comparable to disease of any other part of the body, the liver, the lungs, or the kidney (a purely physical process), and hence perfectly capable of entire recovery and not a transgression which invites antipathy, is a determining factor in preventing many an insane person the means of recovery and of incapacitating him for a life of happiness and of usefulness.

Nowhere is that bitter struggle for existence seen in its most pitiable aspects than in the intolerant and unsympathetic attitude assumed by society at large to the sufferer from an attack of brain disease. This attitude, that brands a man for life as with the mark of Cain, is largely influential in preventing those with incipient mental trouble from seeking relief by treatment in hospitals at a time when treatment may be of service, and compels them to regard the sanatorium as a place of last resort, and then only is it sought when disordered mental function may have ruined forever a once brilliant mind.

Why should such things be? Social considerations alone are not responsible for all of this. The cumbersome, centuries-old machinery of the law is another factor in this vicious circle. The many, at times very important, legal restrictions are in other instances but a preventive measure in giving relief that such hospital treatment offers.

European countries have solved this problem; and, fortunately, through the activity of our present Commissioner in Lunacy, Dr. F. Peterson, it looks as though the way might be offered for New York State to take the lead in this country in the establishment of Psychopathic Hospitals for the treatment of the incipient insanities that in their early stages may be cured. It is to be most earnestly hoped that a way may be opened whereby a large number of the community may have hospitals fitted for their most crying needs.

THE PLAGUE IN CALIFORNIA.

In the issue of July 10, 1902, of the *Sacramento Bee*, the following interesting and remarkable statement is made:

"The *Bee* to-day begins the publication of a comprehensive history of bubonic plague in San Francisco, from its first detection, in March, 1900, down to the present period. The narrative is divided into three sections, of which the second and third will appear to-morrow and the day following. As a whole the story is one of remarkable interest, and is believed to be without a parallel in the record of pestilential diseases in this country. What has made it most remarkable is the systematic and pernicious effort to conceal and deny the truth, on the part of Governor Gage and his satellites, the reorganized State Board of Health, the daily press of San Francisco, its commercial bodies and the present Mayor of that city. The folly and futility of short-sighted attempts to suppress the facts are clearly exposed in this recital."

Following this broadside attack there is published in three instalments in the issues of July 10, 11, and 12 a recital which if true, even in its most general features, would merit the attention of the highest authorities in this country.

Many of the details leading to the actual knowledge of the presence of plague are known to the readers of the Medical News, inasmuch as they, from time to time, have been presented;

but of the inner history of the attempts by the Governor of the State of California to suppress all knowledge of the plague in the State but few are aware. These are told in unmistakable language in the issues of the *Sacramento Bee* just cited and bear the unmistakable evidences of thoroughness and of fair dealing.

There would seem to have been injected into the San Francisco plague situation a most rascally and despicable bit of machine politics, the which might have endangered many lives in that community, and further might have proved a source of menace to the citizens of this country from ocean to ocean.

The conduct of Drs. Kinyoun, White, Ryfkogel and the work of the Commission of Drs. Flexner, Barker and Novy stand out as examples of singular devotion to the cause of scientific truth, while the attitude of the Mayor of San Francisco would seem to merit the severest condemnation.

The stand taken by the Japanese in San Francisco as outlined in this present account is full of inspiration, seemingly caught from the example of the discoverer of the plague bacillus, Dr. Kitasato, one of their number. They deprecated the suggestions made by the State Health Department and gave orders to their fellow-countrymen to avoid Chinatown and to report immediately to a physician as soon as they were ill, and they further encouraged the use of the anti-plague serum.

Plague is still present in San Francisco, says the *Bee,* and the report here briefly alluded to merits the attention of our national sanitarians, the Public Health Service.

SEROUS PLEURISIES.

THE origin, nature, and diagnosis of the so-called primary serous pleurisies are matters of very vital interest to the practitioner, as is evidenced by the vast amount of literature devoted to them in the current journals.

The chief point at issue is the relation borne by the disease, or the symptoms, to tuberculosis, and upon this point it seems impossible to reach anything like unanimity of opinion. Clinically, the condition is well differentiated from even the more obscure cases of secondary tuberculous pleurisies; its origin is generally rather acute; it does not tend to recur if evacuated; it has not the marked cyto-diagnostic characters of the latter condition. Nevertheless, in the opinion of many observers the great majority of cases of acute pleurisies are in reality expressions of a tuberculous infection. Osler, in his last edition (p. 666) says: "I confess that the more carefully I have studied the question, the larger does the proportion appear to be of primary pleurisies of tuberculous origin." On the other hand, it is remarkable that Cornet in his great book on tuberculosis hardly considers the theory worthy of serious attention.

The question is certainly one very difficult to approach. Bacteriological examination, though negative, does not exclude the possibility of tuberculosis. Dr. Cabot has recently made a most valuable, and perhaps decisive, contribution to the debated point. He made the attempt to determine the subsequent history in 300 cases of pleurisy "in which there was good evidence for believing that a serous pleurisy was present, but in which there was no evidence of tuberculosis, either in the lung or in other organs." His results were almost startling. He found that eighty per cent. of the patients were apparently well at the end of five years or more, half of this number having been followed for at least ten years. Fifteen per cent. sooner or later developed demonstrable tuberculosis of lung or bone, but in only three per cent. was this tuberculosis manifested within two years after the pleurisy. Cabot himself states expressly that he has attempted to determine only the prognosis and not the character of serous pleurisies. Nevertheless, his figures furnish the most powerful argument as yet accessible against the theory of the tuberculous character of the disease.

It may be confidently asserted that the proportion of cases in which tuberculosis followed the pleurisy does not exceed that which would be found to follow any disease distinctly non-tuberculous in character. On the other hand, it falls far below the proportion of cases in which every form of tuberculosis with which we have up to the present time become acquainted continues to give marked symptoms perhaps for years, with an eventual fatal outcome. The evidence is indirect, but in so far as statistics can prove anything, it is conclusive.

ECHOES AND NEWS.

NEW YORK.

Loomis Sanitarium Physician.—Dr. Herbert M. King of Grand Rapids, Michigan, has been appointed physician in charge of the Loomis Sanitarium at Liberty, N. Y. Dr. King's name is well known throughout the West for his writings and researches in pulmonary tuberculosis. He will bring to his appointment the skill and experience of an expert.

An Unscrupulous Stenographer.—There has been in this city for some time past a tall, thin woman who does medical stenography, who makes it a business to get advance loans from physicians for work to be done. She rarely returns after receiving the advances.

The Barren Island Nuisance.—The President of the Board of Health is reported to have said at a recent meeting that steps had been taken to abate the nuisance caused by odors from Barren Island. A general order was served on the President of the Sanitary Utilization Company, directing the company to abate the nuisance forthwith.

Pure Mineral Waters.—An amendment was adopted to section No. 202 of the Sanitary Code, at a recent meeting of the Health Board, providing that all manufacturers of mineral waters in the city, about 467 in number, must file with the Board of Health an analysis of their waters, together with the name, the place of manufacture, and the place from which the water is brought to this city. They will be obliged to secure a permit before continuing the manufacture of the waters. The amendment was the result of complaints to President Lederle that many of the waters sold in the city were unhealthy. Tests were made and it was found that the complaints were justified.

PHILADELPHIA.

Decrease in Death Rate.—During the week ending July 19 there were reported 509 deaths, as against 570 the previous week. Six deaths were attributed to sunstroke. There were 13 new cases of smallpox and 3 deaths. Typhoid fever contributed 10 deaths, there being 63 new cases.

Foreign Physician Visits Philadelphia.—Dr. Thakur Bhowani Singh, physician to the Maharaja of Karauli, India, stopped here several days of last week while on a tour of the United States.

Change of Diet for Inmates of Almshouse.—A change in the diet of the inmates of the Philadelphia hospital made during the last ten days is said to leave no valid ground for the complaint of being underfed. Such complaints have heretofore been of rather frequent occurrence and not confined wholly to the almshouse, although being more persistent there. To determine the diet question a study has been made of the rations served in the United States army, and of the per capita quantity and the character of food supplied at the House of Correction, Moyamensing Prison, and other public institutions. From these data a diet schedule has been prepared, which, while in the nature of an experiment, meets with the approval of the physicians and the department of Charities and Corrections.

Sand for Filter Beds.—The Lower Roxborough filtration plant which the contractor, agreed to have ready for operation ten months ago is still unfinished and the two sand beds, more recently promised, are not yet completed. Scarcity of sand is claimed by the contractors who say that the plant will be finished by September 1st, if the sand comes at its present rate of 500 tons daily. Statements that the specifications regarding sand are being disregarded were emphatically denied by the engineer in charge who said that from June 21st to July 9th, eleven out of thirty-seven carloads had been rejected as not up to the required standard.

Dr. Browning's Award.—The Pittsburg Orphan's Court has awarded Dr. Walter C. Browning of this city $29,239.25 for professional services rendered to the late Senator C. L. Magee. Dr. Browning's claim was for a total of $317,000, of which $190,000 was directly for services. The balance, according to the claim raised, was money, and its accrued earnings, which Mr. Magee is alleged to have invested for the physician out of gratitude. The principal question in court was the fees the alleged investment not receiving much attention. The case will probably be appealed as the verdict is not satisfactory to the plaintiff. The *Times* says that "possibly the physician's larger expectations were well based. But it is evident from his claim that they were based upon something else than the ordinary relations of physician and patient. As a compensation for purely professional services, the most prosperous surgeon would probably regard the court's award as adequate. Debts of friendship or gratitude, however valid, cannot be collected at law unless they have been acknowledged in a binding contract. Dr. Browning's mistake was in not turning Mr. Magee's promises into cash or having them put in writing. In waiting for them to accumulate he took the risk of what happened; his patient died before his expectations were realized. For these reasons it appears likely that the judgment of the Orphan's Court will stand."

Rush Hospital.—Dr. A. M. Rothrock has been appointed visiting physician to the country branch of the Rush hospital for the treatment of consumption and allied diseases, recently opened near Malvern, Pa.

Government May Object to Municipal Hospital Site.—The citizens of the Fortieth Ward may be aided in their fight against the Cannon Ball Farm as a site for the municipal hospital by the United States government. Should the petitions and protests of the people fail it is said that objections will be made on account of the proximity of the site to League Island navy yard. Drainage would be carried to that property and the danger of transmission of contagion by mosquitoes is also feared.

Negro Population Increasing.—The steady northern migration of negroes is fast increasing the colored population of this city. Reliable statisticians say that if the present rate of increase continues the end of the next decade will see Philadelphia the center of greatest density of the national negro population. Colonies are being formed in the suburbs as the older settlements are entirely inadequate. In 1870 there were 22,147 negroes in this city; in 1880, 31,699; in 1890, 39,371; in 1900, 62,613, and the annual immigration is estimated at 5,000. Lately hundreds of negro laborers were brought here to work on the new filtration plants.

Beer Consumption in Philadelphia.—From statements made to license courts by the brewers of this city it appears that the annual output of beer is over 2,000,000 barrels, an increase of 200,000 barrels in one year. The exports are believed to be equaled by the imports. One of the daily papers, in commenting on the apparent increase in consumption of this beverage, says that this means something like two barrels annually for each man, woman and child in the city. There is not a doubt that beer is used increasingly by growing numbers of men. "The consumption of so mild a tipple undoubtedly and demonstrably checks the inroads of stronger liquors which produce drunkenness, and temperate living in this country as in Germany is encouraged by the popular fondness for beer. All but a few of the most fanatical advocates of total abstinence will find satisfaction in the thought that more beer is being brewed and consumed in America."

Philadelphia Vacant Lots Cultivation Association.—In a recent published letter the Superintendent of this Association calls attention to some facts regarding its work and possibilities. There are thousands of people willing to cultivate these lots, at least 2,000 families wishing facilities each season. The difficulties are the procuring of suitable land in accessible locations and the payment of the necessary force of overseers. For an outlay of $12,000 to $15,000 he states that $100,000 to $150,000 annually might be realized, to say nothing of the improved health of the persons thus engaged, the reduction of the unemployed classes, etc. The work of this association which has proven so successful undoubtedly has greater possibilities.

CHICAGO.

First Aid Instruction.—Dr. John E. Owens, Chief of the surgical department of the Chicago and Northwestern Railway, has inaugurated a system whereby all of the conductors, engineers, firemen and brakemen are to be familiarized with the principles of first aid to the injured. These employes will each be furnished with a kit of necessary materials for dressing wounds. On each train, freight as well as passenger, large kits of simple but necessary surgical instruments, bandages, antiseptic dressings, and remedies will be placed, so that in the event of a wreck or serious accident immediate treatment can be given to the injured.

Scarlet Fever.—This disease is declared epidemic in the region bounded by State, Halsted, Forty-seventh and Fifty-fifth streets, and reports of deaths are beginning to reach the health department. The carelessness of parents in exposing their children to the disease amazes the health officials. It is reported that it is not uncommon to find women carrying one child and leading another by the hand, visiting others in whose families scarlet fever is raging. One physician who saw a case of this kind remonstrated, and was told: "We are not afraid of scarlet fever."

Chicago Lying-in Hospital.—The Trustees of this Hospital have completed the $10,000 building fund necessary to secure the $5,000 donation of Abraham Slimmer. The plans for the erection of the new building are already under preparation.

St. Luke's Society Officials Set Free.—On July 2 the grand jury voted a no-bill in the case of the President and Secretary of the St. Luke's Society. By this action of the grand jury they are relieved of all responsibility for the disastrous fire which occurred June 9th, and resulted in the loss of twelve lives.

Illness of Dr. Simmons.—Dr. George H. Simmons, Editor of the *Journal of the American Medical Association,* recently underwent an operation for gall-stone disease. The operation was performed by Dr. M. L. Harris, of this city. A gall stone, about the size of a hazelnut, was found at the entrance of the cystic duct. The stone acted in the nature of a ball-valve, such as the late Dr. Christian Fenger described in his elaborate monograph on "Diseases of the Gall Bladder." The readers of the Medical News will be gratified to learn that Dr. Simmons is recovering rapidly.

GENERAL.

Cholera in the Philippines Decreasing.—Cholera continues to decrease in the city and provinces. The authorities think the epidemic is also less virulent.

Consolidation of Southern Medical Journals.—The Atlanta Medical and Surgical Journal and the Southern Medical Record have been consolidated to make the Atlanta Journal-Record of Medicine.

New Medical Research Laboratory in the Far East.—According to the Lancet the Government of the Federated Malay States has established in Kuala Lumpur, the capital, a research institute which is open to all. The medical department is exceptionally well equipped. The laboratory is under the direction of Hamilton Wright, M.D., of McGill.

New Army Surgeon-General.—The President has designated Col. Robert M. O'Reilly to be Surgeon-General of the Army, to succeed Gen. William H. Forwood, who will retire on September 7 next. Col. O'Reilly will have until January, 1909, to serve as Surgeon-General. He was appointed from Pennsylvania as a medical cadet in 1864, and is a graduate of the medical department of the University of Pennsylvania.

Healthfulness of the West.—The town of Ellsworth, Wis., population 1,500, was the healthiest place in the United States in 1901. Only two persons in the town died and one of these deaths was from smallpox, an uncommon disease in Ellsworth. The Marine Hospital Service has compiled the official reports for last year from 1,435 cities and towns having a population of 1,000 or more. These reports seem to show that if one would enjoy the most favorable conditions for health one should live in Iowa, the mortality in that State last year being at the rate of only 9.20 per 1,000 of population. Two or three other States, according to the official record, look more promising, but it has to be considered that in these only a few small towns and none of the large cities reported. For example, North Dakota, according to this incomplete record had a death rate of only 5.17, Oregon of 7.60; South Dakota of 8.20, and Arizona of 3.33. The middle Western States had a far better health record than those of the East and the far Western better, as a rule, than the middle Western. In Louisiana, as usual, the death rate was highest, 20.65, but the neighboring State of Arkansas had a record of 10.6 per cent. The most unhealthy large city in the United States was Charleston, S.C., death rate, 29.11. Laredo, with a population of 13,429, had a mortality of 36 per 1,000. Here is the record per 1,000 for some of the great cities of the country: New York 20, Boston 19.70, Philadelphia 18.27, Baltimore 20.23, Washington 21.14, New Orleans 21.44, Cincinnati 18.88, Chicago 13.88, St. Louis 17.67, San Francisco 19.34.

Need for Negro Physicians.—The Evening Post quotes from a recent article in the Chicago Record-Herald, in which President J. G. Merrill of Fisk University calls attention to the growing need of trained negro physicians and ministers. In many parts of the South the colored man has quite outgrown the old type of negro preacher, and there are no places where he does not need in his pastor a social guide and educator ready to direct the forward movement of the race. It is not generally known in the North that Southern white ministers, at least in many sections, decline to marry negroes. In one case a negro couple desirous of being married in an Episcopal church were only able to do so by passing themselves off for white persons after a long journey to a city in which they were not known. The negro doctor, as President Merrill points out, has "an amazing opportunity" among the eight millions of his race, inasmuch as the black man turns to a physician of his own color as readily as the white physician in the South turns away from colored patients whenever he can honorably do so. President Merrill was able to tell of the success of twelve negro doctors in Nashville, all doing well financially, and half of them amassing property. He reports also that it is easier for a colored physician to build up a self-supporting practice than for the white doctor. The necessity of good medical schools for negroes should be plain to all, even to those who doubt the wisdom of higher education in the classics and natural sciences. New York city would benefit if there were more competent and professionally high-minded colored doctors within its limits to do missionary work in its "colored quarters."

Obituary.—Dr. Abram Mills Fanning died suddenly of heart trouble, resulting from acute indigestion, at his residence on Sunday afternoon. He was born in this city in 1863 and was a graduate of the College of Physicians and Surgeons, in the class of 1886.

Dr. Edward L. Parker, 26 years old, who was attached to the Long Island State Hospital at Kings Park, Long Island, was found drowned at Sea Gate, Coney Island, last week. Dr. Parker was a graduate of Yale and had been at the Long Island State Hospital four years.

Dr. Joseph Biddle Wilkinson, one of the oldest and best-known physicians in Louisiana, died in New Orleans last week, aged 85. He was a grandson of Gen. James Wilkinson, former Commander-in-Chief of the United States Army and the Commissioner who received Louisiana after its purchase from France. Dr. Wilkinson was a member of the Louisiana Legislature for years and a member of the Secession Convention of 1861 which took Louisiana out of the Union. He leaves seven sons, nearly all of whom have achieved some distinction. J. B. Wilkinson, Jr., was a member of the United States Board of Appraisers at New York, Theodore S. Wilkinson, Collector of Customs at New Orleans and member of Congress, and Dr. C. P. Wilkinson, President of the Louisiana State Board of Health.

Dr. Thomas Henry Hoskins, who has just died in Newport, Vt., was prominent in Vermont for thirty years, but his native place was Gardiner, Me., where he was born in 1828. When twenty-one he started for the gold fields of California, but stopped at Louisville, Ky., where he entered a drug store. He studied medicine in the then celebrated medical school of that city, while carrying on a market garden near Louisville. After graduating he remained as Assistant Professor of Anatomy, translated French and German works for the University of Louisville, and practised his profession until in 1861, when he removed to Boston. Then he became surgeon to several institutions, a lecturer in Dr. Dio Lewis' school, and an editorial writer on a Boston paper.

Dr. James Elliott Dwinelle was found dead at his home in Baltimore, July 18. He had been stricken with heart disease during the night. Dr. Dwinelle was born in Cazenovia, Madison County, N. Y., in 1830, and was the son of the late George Justin Dwinelle of New York. He was of Huguenot extraction, his ancestors having left France twenty years before the massacre of St. Bartholomew. Dr. Dwinelle received his medical degree from Jefferson College, Philadelphia.

SOCIETY PROCEEDINGS.

AMERICAN SURGICAL ASSOCIATION.

Twenty-second Annual Meeting, Held at Albany, June 3, 4, and 5, 1902.

FIRST DAY—JUNE 3D.

The Association was called to order in the Senate Chamber by the President, Dr. DeForest Willard.

Presidential Address.—Dr. Willard thanked the members for the great honor bestowed upon him and said he very cordially agreed with the man who had said he would rather be elected a Fellow of the American Surgical Association than be made President of the American Medical. He devoted the greater part of his short address to sketching the condition of surgery at the time of the founding of the Association twenty-one years ago, when celiotomy was young and asepsis almost in its infancy. His quotations from the first issued volume showed that a majority of the founders were exceedingly skeptical in regard to the assertions of Lister concerning micro-organisms. Some of the exceptions taken to the new teaching were laughably vehement, but Dr. Willard reminded the smiling Fellows that excerpts from to-day's transactions will probably be just as laughable twenty years hence. In closing, he urged the importance of strenuously guarding the door of entrance to the Association. The elder Gross and other founders always insisted that only those peculiarly fitted should be accorded the privilege of membership. Fellowship must remain one of the prizes for American surgeons to strive for. The Association has lost during the year, Sir William MacCormac, and Drs. E. M. Moore, Christian Fenger, Levi C. Lane, and Clayton Parkhill.

Report of a Successful Case of Gunshot Wound of Stomach and Liver with Posterior Drainage.—Dr. Roswell Park of Buffalo said that he saw and operated upon this case one hour and a half after the infliction of the injury. It was made by a revolver bullet in the mid-line just an inch above the tip of the xyphoid. This bone was shattered and when, by a double incision the whole wound area was incised, the abdominal cavity was found full of clots and detritus. With his hand he scooped out more than two quarts and was then able to make an examination of the parts. The left lobe of the liver was deeply cut; the stomach was perforated but fortunately had been comparatively empty; it was therefore not washed and the wounds were closed by triple sutures. No search was made for the bullet, it having been shown that such efforts are worse than useless. Posterior drainage was then established through an incision just below the twelfth rib and a tube was passed into the lesser peritoneal cavity. Recovery was uninterrupted and complete.

The Importance of Drainage in Bullet Wounds of Intraperitoneal Viscera.—Dr. L. M. Tiffany of Baltimore cited two cases in each of which the injury was extensive and the shock profound. One had nine wounds of the lesser gut made by a small pistol bullet, the other had perforations of both liver and stomach due to a similar cause. So-called "civil" bullet wounds are infected. They differ from the injuries inflicted by the modern military small arm and there is no sense in considering their treatment under the same head. Whatever may be true of the latter, every abdominal wound made in civil life should be drained, and sterile gauze is the best agent. The hollow viscera are full of infectious matter; their walls are thin and their shapes vary; they are almost like a honeycomb; it is not possible for a bullet to traverse the cavity of the abdomen and remain clean. From the moment of making the first visceral perforation the bullet is a lethal agent. Drainage should therefore be free and the most important point in connection with it is that the direction must be from *within out.* Dry peritoneal toilet without any flushing whatsoever is the first step. The second is free and full venous infusion. If the capillaries and arterioles are overdistended, they will pour clean water out in great quantities on the peritoneal surface. He recommended 1,500 to 2,000 c.c. normal salt solution intravenously during the operation and 1,000 c.c. every six hours for several days thereafter. The prognosis is good no matter how grave the injury, or how profound the infection so soon as free drainage is established.

A Report of a Case of Gunshot Wound of the Spinal Cord.—Dr. R. H. Harte of Philadelphia said that he had not been able to find any record of successful suture of the spinal cord in man or in the higher vertebrates. In numerous instances it has been done with total recovery of function in frogs and in certain reptiles. The case in point was not one upon which he himself had operated; this good fortune had fallen to his assistant, Dr. F. T. Stewart of the Pennsylvania

Hospital. The patient, a woman twenty-six years of age, had been shot twice with a small revolver, the bullets entering in the neighborhood of the seventh dorsal. Paralysis was complete below the tenth spine and from three and a half inches below the umbilicus. Three hours after the injury Dr. Stewart removed the right laminæ of the seventh and eighth vertebræ. The cord was severed and retracted three-quarters of an inch; the bullets were found in this space. The cord was approximated by three sutures; the membranes having been destroyed, no use of them could be made. On the fifth day there was pain in the right knee and the surface anesthesia had begun to travel downward. From that time to the present, some fifteen months, the improvement has been gradual, though slow. She has now a fair control of bowel and bladder. The menses appeared at the seventh month and have since been normal. Early operation is indicated by this remarkable case just as certainly, and for virtually the same indications in vertebral injury as in cranial injuries. There is absolutely no mode of telling whether a given case is suffering from concussion, contusion or laceration, save by exploration.

Drainage.—Dr. Rodman of Philadelphia said that the President must have borne in mind the fact of his having come from Kentucky. He had seen a good deal of civil bullet injury both there and in Philadelphia. It had taught the very great value of drainage. He felt that every abdominal bullet wound should be treated as though it were septic.

Experience Gained in Late Wars.—Reports show that the teaching in regard to the relation between hematemesis and gastric perforation has been fallacious. It is not pathognomonic of perforation, the impact of the blow in the region of the stomach being sufficient to cause it. Save with a few possible exceptions which no one can determine in advance, all bullets leave a septic trail. In the treatment of gastric wounds the lesser peritoneum should always be drained from the rear, preferably, and through a glass tube filled with gauze. As time is a most important factor, searching for the bullet is not to be thought of. Abernathy once said of a famous surgeon who operated on Sir R. Abercrombie when a bullet had lodged in his thigh, "Gentlemen, he groped and he groped and he groped, and Sir Robert died."

Dr. Carson of St. Louis wished to be put on record as strongly opposed to flushing of the abdomen. He never had had a single case terminate successfully. He commended the posterior drainage in addition to the anterior, because he felt that the vast majority of these wounds were septic.

Dr. Nancrede of Ann Arbor said that it was much to be regretted that in at least one-half of the textbooks of to-day the influence of the reports of the Civil War were still so much in evidence. Instead of teaching to-day what recent wars have shown to be true the fallacious statements gleaned from '61 are still adhered to. Hundreds of cases in the recent wars have shown that the great joint cavities can be opened by the modern military missile without the subsequent disability resulting, leaving out of consideration the question of death-rate. In '61 this was 98 per cent.; it is now between 2 and 3 per cent. The modern bullet is aseptic; this is due largely to the absence of grease and wax with which the older bullets were coated.

Admirable results have been obtained from simple fixation and extension for a week or ten days, combined with subsequent mild passive motion. There must be sweeping modifications in the treating of joint injuries by bullets, one of the most important being that if the operator keeps his fingers and probes out of the joint wound, the prognosis is almost invariably good.

Dr. Bell of Montreal had conducted a number of experiments on dogs and other high vertebrates with a view to learning definitely whether the cut spinal column can be functionally restored by suturing. He never succeeded. In the first place he found the utmost difficulty in the technic; his sutures were very prone to tear out, and he found that if any portion of the cord had been resected it was very difficult to unite it because the cord is of a different structure from mere nerve. He had supposed that its great systems of ganglionic cells were the factor which had prevented the successful reestablishment of function. He was glad, however, to be shown that this was a purely theoretical assumption.

Dr. Macdonald of Albany said that what he had heard and what he knew from his own experience had taught him that there are three distinct types of gunshot wounds which cannot well be discussed together; they are the so-called civil wound, made by the ordinary revolver or shotgun, the modern military wound, and the old-fashioned military wound.

Dr. Estes of South Bethlehem said that because of the trajectory of conical slugs the wound of entrance may be much larger than that through the viscera. Of course the inverse of this may be true. He emphasized the importance of posterior drainage.

Dr. Weeks of Portland believed that there are cases of visceral gunshot wounds in which no drainage is necessary. These are those in which there has been little or no extravasation. Posterior drainage he could not commend. One important factor in establishing a successful gauze drain is that the drain and the first compress should be saturated before applying them. Such drains work admirably for serum, but tubes are necessary for the removal of pus.

Dr. Vander Veer had seen many abdominal wounds in '61. The only occasion on which they ventured then to operate on these cases was when the abdominal wall was so torn away that the viscera protruded. They were then put back in a crude sort of fashion, but every one of the patients died. He endorsed what Dr. Nancrede had said as to the wounds of great joints in the wars of to-day. Shortly after the battle of San Juan an officer who had been shot through the hip, only about three weeks before, called at his office; the primary dressings which had been applied on the field were still upon the wound, and when these were removed the healing was found to be complete and the function almost perfect. In '61 this case would have almost certainly died in forty-eight hours.

Dr. Owens of Chicago felt that in abdominal injury each case must be decided for itself; so far as he could remember posterior drainage had not formerly been insisted upon; he believed it to be a step in advance both because gravity assists and because it is well known that rupture is favored by the establishment of anterior drainage.

Dr. Abbe of New York said that functional restoration of the divided nerves is very rare; it is most difficult therefore to understand the physiology of Dr. Harte's most remarkable case. As to the technic of suturing the cord, he believed that in many cases it would be necessary to resect a portion of the body of the vertebra if the cord destruction had been at all great.

Dr. Park said that Harte's case violated all clinical and laboratory traditions; he cited a case of spinal respiration which seemed very extraordinary. During the progress of a high laminectomy, he was astounded to find that the man, who had been wounded by the bullet's passing through his lungs, was breathing through his back like an insect.

Dr. Tiffany said that posterior drainage would occasionally open the pleural cavity because of the obliquity of the diaphragm. It therefore seemed to him undesirable, except perhaps under certain conditions; the gauze drainage kept in active flowing by this method of infusion needed no changing until the patient was out of the woods.

Dr. Harte said that in consideration of abdominal wounds, no human being could tell without operation whether they had penetrated a viscus or not, and there was no possible way of finding out whether infection had taken place or not. Posterior drainage, while good, in his opinion might often be unnecessary. The abdominal wound, however, should certainly not be too tightly closed. The size of the gauze, if such drainage be used, is important; it must be large and it must go deep. He agreed with Dr. Tiffany in the matter of not changing it early.

Removal of the Prostate and Bladder Through Suprapubic Incision for Carcinoma.—Dr. M. L. Harris of Chicago gave a detailed account of the technic which he had used on a difficult case in a man fifty-three years of age. The salient features of his technic were, first, the suprapubic incision and working outside the capsule; the division of the urethra at the triangular ligament; the reduction of hemorrhage by upward traction; the saving of a portion of the bladder mucous membrane, into which to transplant the ureters. It was remarkable, he said, the extent to which the bladder mucous membrane will regenerate and stretch itself; in two months from a very small and seemingly hopelessly injured, newly-made bladder, this patient had made for himself a very serviceable viscus, which would retain from four to five ounces of urine without difficulty.

Anatomical and Technical Reasons why the Perineal is Preferable to the Suprapubic Route in Prostatic Surgery.—Dr. J. E. Moore of Minneapolis said that the establishment of catheter-life nowadays is a disgrace to any surgeon. The prospects of an immediate death or even a serious break-down should not be the first indications, as they are now in too many cases, for surgical interference. The perineal route is the operation of the future; this conclusion has been forced upon him partly by study of the parts, partly by the extraordinary success which had attended his efforts at massage in treating the prostate. He had been astounded at the ease with which this manipulation could be accomplished by the use of a simple curved sound, and it was a simple step from this to using the sound in radical removal. Inasmuch as the function of the prostate is generative rather than urinary, it seems clear that those who have urinary obstruction after prostatic removal have it because of physical injury. Another indication favoring the perineal route is that the distance from this region to the prostate is but one half that from the prostate to the suprapubic surface. He always uses the median incision; a complete excision of the prostate is not often indicated. The isthmus should be left, and if the lateral lobes are so large that the simple median incision does not afford room enough, an incision which passes down only to the perineal muscle may be made.

Permanent Suprapubic Drainage in Tuberculosis of the Bladder.—Dr. Charles A. Powers of Denver gave a series of notes on a case in which he had established this form of drainage in 1895. It had been characterized by the most gratifying success. The man had suffered from vesical tuberculosis for several years prior to operation, all local treatment having failed. It is probable that this is the form of treatment for the great majority of these cases, because they illustrate the simple surgical truth that wounded areas must be placed at rest.

Dr. Ransohoff of Cincinnati spoke on the use of the curvilinear prerectal incision for abscess of the prostate gland. He said that prostatic abscess of the parenchyma is relatively rare and is consequently often overlooked. It may, however, assume a latent form of very great danger. In many of the patients treated through the rectum a sinus is established which it is hopeless to try to heal. There is no difficulty in getting the prostate out by the use of an ordinary stone-searcher. To be sure the median incision is bloodless, but if it be remembered that the only vessels cut in the curved incision are the superficial branches of the pudic, which are in no way difficult of seizing, it is free from the dangers of injuring the bulb, which may be cut in the median incision.

Dr. Eliot of Boston said that it was useless to remove the middle lobe alone; the operation must be radical. The bimanual method was most excellent, but on the whole in the majority of cases the perineal route is more safe.

Dr. Weir of New York said that in connection with Dr. Harris's statement as to the regenerative power of the bladder, he remembered a number of cases in which useful organs had developed after operations in which the case seemed absolutely hopeless. He supported Dr. Powers in the belief that suprapubic drainage was necessary to the cure of chronic vesical tuberculosis. Ten years ago he had a similar case. He further commended the semi-lunar incision of Dr. Ransohoff.

Dr. Ochsner of Chicago said that until six months ago he had used the combined incision; but that now all his work was done through the perineum alone. He urged the use of the curved incision. It causes more hemorrhage from the superficial cut, but the operation area is so much enlarged as to justify its use.

Dr. Finney of Baltimore said it seemed strange to him in that the discussion of prostatic treatments nothing had been said of the Bottini. On the basis of Dr. Young's report, soon to be made from Johns Hopkins, of fifty cases in which this operation had been done, he assured the Association that in competent hands the Bottini would be the operation of the future, and that prostatectomy in all its modifications would be set aside.

Dr. Abbe said that the keeping of patients dry after suprapubic drainage was not such a bugbear as many seemed to think. The operation could readily be done under cocaine, and the important point in the technic, from his standpoint, was the inversion of the bladder mucous membrane; it is the pouting of this which causes the urinary leakage around the tube. He then demonstrated a simple urinal which, when suspended from the waist, gives a very satisfactory result.

Dr. Moore, in closing, said that the development of prostatectomy had been most remarkable; the discussion had shown him that it is not so much the position of the incision, but the man who makes it, some operators no doubt doing better work through the median, some through the curvilinear. As this operation becomes freed from danger, which it will, the patients on whom it is done will grow as a class younger, and it will then be necessary to devise a technic for the preservation of the seminal ducts. This he believed he had been able to accomplish in one case.

Abdominal Hysterectomy.—Dr. John P. Deaver of Philadelphia said that myomectomy is only indicated in the rarest cases. Supravaginal amputation is unquestionably the best operation, as it does not interfere with the anatomy of the vagina. This is important because it tends to diminish the danger of displacements. Furthermore, by it, there can be preserved to the woman every function save that of childbearing. Every effort should be made to do conservative surgery in this type of case, because of the remote effects of total extirpation which are only of recent years beginning to be studied.

Fatal Acetonuria Following an Operation for Appendicitis.—Dr. G. E. Brewer of New York gave the details of this remarkable case; it was that of a school-boy aged twelve, upon whom he had operated for appendicitis forty-eight hours after the beginning of the symptoms. Chloroform was the anesthetic used, and in every conceivable manner the operation and the reaction of the patient were entirely in accord with the usual routine. For the first two and a half days the recovery seemed certain; a pus cavity had been evacuated, and the temperature and pulse had, at the end of the second day, become normal. On the third day the urine, which previously had been normal, began to show traces of albumin and casts. On the fourth day, in the middle of the night, the mother, who was sleeping in an adjoining room, was awakened by an agonizing cry, which brought her rushing to the bedside; there was every evidence on the lad's face of the most profound and acute mental agony; for a few moments he recognized no one; shortly, however, this condition passed away and he fell into a natural sleep. The following morning there was another seizure somewhat worse than the preceding, and the sleep into which he passed after it bordered on coma. A most careful physical examination made with the aid of experienced consultants failed to reveal the slightest cause for this condition. By a process of exclusion, all possible conditions which might provoke it were set aside. Meantime during the day the attacks became more frequent, more violent and more agonizing, and the intervals were marked by a gradually deepening coma. On the fifth day a sweet odor in the breath was noticed for the first time, which suggested the presence of acetone. The consultants, however, said that no acetone had ever been observed in a case not complicated by diabetes. Every kind of cathartic was used and on the advice of Dr. Evan Evans saline infusions and injections of every kind were tried, but without avail. The coma deepened, and without at any time giving any physical signs of what was causing it, death occurred. The salient points in this interesting case are, first, the septic focus; second, apparent improvement, as evidenced by charts, etc.; third, in the midst of this a maniacal delirium, coma and death within thirty-two hours from onset. Acetone had been fully discussed in diabetes, where, under certain conditions, it is quite prone to appear, patients dying from it, as shown by the researches of Herter, probably succumbing to a true CO_2 poisoning which is induced by the acetone reducing the normal alkalinity of the blood to such extent that is cannot take up the CO_2 of the tissues.

Second Day—June 4th.

Supravaginal Hysterectomy from a Technical Standpoint.—Dr. W. G. Macdonald said that there were many conditions of tumor formation in the female pelvis which had been operated on altogether too indiscriminately in the past. If these caused no symptoms, in many cases there was no reason for attacking them. He preferred the abdominal mode of attack particularly in those cases which have been incised from the vagina for drainage, or in which abscess cavities had ruptured into the bladder, vagina or rectum. The surgical profession had shown a retrogression when they rejected the original technic of Kimball, which was supravaginal, and adopted the lower operation. The vast numbers of grotesque clamps and togs which had been devised for the furtherance of this operation showed the truth of his assertion. He said that Kelly's technic of splitting the uterus, especially when complicated by incarcerated fibroids, was of the utmost value. He showed numerous sketches which demonstrated a modification of this method which had given him admirable results.

Myomectomy vs. Hysterectomy.—Dr. A. J. McCosh of New York said that gynecology had been peculiarly unprogressive in its efforts to preserve the uterus and its appendages. Save those fibroids which endanger the woman's life, all should be removed by myomectomy. Whereas about six years ago the proportion of the statistics in his private and hospital practice stood about one to five, to-day he does the first operation fully twice as often as he does the second. It does not matter what the position, or the size, or the number of the fibroids may be, it is in his experience always amenable to removal. He splits the uterus from fundus to cervix and divulses the tumor as rapidly as possible; this is the only important part of the technic, for by it the hemorrhage is minimized. The remaining uterus is, in pronounced cases, a very wretched and ragged-looking organ; Nature, however, will take care of it and reestablish its childbearing function, as he has had occasion three times to observe, after it had been trimmed down and reunited. Thirty-two of his cases have had the menstrual function reestablished, and in twenty-seven of them it has been abolutely normal. In conclusion he said that myomectomy is almost always the operation of preference in young women; there is no great danger from the operation if the strictest asepsis be maintained; with speedy divulsion there is no fear of hemorrhage.

Choice Between the Suprapubic and Infrapubic Methods of Reaching Tumors and Other Surgical Lesions of the Pelvic Organs.—Dr. M. H. Richardson of Boston said that perhaps he was in no position to criticize the vaginal route inasmuch as he had followed its technic in only about one-half of one per cent. of his cases. Experience, feasibility, anatomy and pathology were the points which determined an operator in choosing between them. The second factor must indeed be great to warrant one in taking the vaginal route. Perhaps the most important indication for this latter technic is in operation on cases in which there has been profound hemorrhage, when shock is established and the patient's life jeopardized by the superior operation.

Abdominal Route for Approaching Rectal Tumors.—Dr. Robert Abbe said that before any surgeon could afford to decide what sort of operation he would do there were many minor questions of great importance to be settled, such as the desirability of switching the contents of the gut through an inguinal colostomy, or the ligation of the internal iliacs, as has been proposed by some Frenchman. He gave the anatomy of the rectum in detail, and stated that two-thirds of the malignant forms are found below the attachment of the peritoneum. Kraske's operation has many valuable points in its favor, but it is recognizedly bloody and dangerous from the point of view of sepsis as well as hemorrhage, and in addition a great objection to it is that the surgeon may be tempted to cut the gut too near the neoplasm in his efforts to unite the segments. Simple section of the peritoneum does not afford space, in his opinion, to do a radical operation; he advocated a combined operation; the abdominal, plus the sacral or perineal. He makes a permanent inguinal colostomy and then, placing a purse-string suture around the gut above and below the growth, cuts it and invaginates the ends; this gives an absoutely clean operation area and a roomy one. In closing he said that all operations for cancer of the rectum must necessarily be more or less elective; the perineal being in general indicated for those very low down, the Kraske for the moderately malignant types not situated too high, and the combined operation for those very malignant tumors which are too frequently found high up.

Dr. Eliot of Boston said that in his last seventy-four cases he had but two deaths; this seemed to him to justify the incursion of the general surgeon into a so-called specialty. Kelly's operation of splitting the uterus, which had been endorsed by Macdonald, had its marked advantages, but he feared that occasionally there might be danger of septic infection from its soiled interior. The supravaginal route seemed to him the one of choice; in five cases he had operated vaginally and then opened the abdomen and looked at his results; in each instance a grave omission or commission was discovered.

Dr. Allen of Cleveland said that the attack on the vaginal work had been too sweeping; there were many indications for the use of this path where good and rapid surgery could surely be done. Malignant growths of the cervix, for instance, which had involved the vault, were seen much better through the vagina than from above.

Dr. Vander Veer had done all kinds of operations on the uterus; as each one had had its day and had passed, he had practised it. He objected to the splitting of the uterus because of the possibility of infection, and because there were few growths which he had not been able to remove without it.

Dr. Mayo of Rochester said that for non-malignant cases the most conservative surgery should be used; his experience with the malign growths, save in cases of carcinoma of the body of the uterus, had been very unfortunate; despite the resection of the lumbar glands, all his cases had died. Probably this was because of violation of the law that removal of malign growths should include ¾ cm. of healthy tissue. This cannot be done in cases of carcinoma of the cervix.

Dr. Bevan of Chicago made a strong plea for Kraske's operation and would limit the combined technic to special cases. The question of the position of the artificial anus is largely one which should be left with the patient, inasmuch as all of this work is at best palliative.

Dr. Eliot of New York said that the gloomy outlook in most cases of malignancy was due to their advanced condition at the time of surgical intervention. He insisted that in every case the lumbar glands should be removed whether they showed the gross evidences of infection or not, because without doubt microscopical section would show them to be diseased.

Dr. McDonald said that the general surgeon is at last coming to his natural heritage. The gynecologist will soon be a thing of the past. There will be somewhat higher mortality, probably, with myomectomy than with hysterectomy, as Dr. McCosh's figures seem to indicate; nevertheless, because of the extraordinary advantages offered by it, it is the coming operation.

Dr. McCosh said that if cancerous glands are in the broad ligament, the case is hopeless and had better be left alone. Of twenty-nine examinations for pyogenic germs in the endometria of his myomectomy operations, twenty-eight proved negative; there does not, therefore, seem to be much danger of sepsis.

Dr. Richardson said that he was surprised to find any one who used the vaginal technic. The very greatest care should be taken not to infect denuded surfaces with malignant growths.

The Teaching of Surgery with Special Reference to the Didactic Method.—Dr. J. D. Bryant of New York said that it was not fanciful to believe that disease and health each has a language of its own; in disease this language is called the signs and symptoms. Medicine and surgery are closely linked together, and the surgeon who endeavors to practise his art without the keenest kind of medical interpretation is indeed a poor product. The power of diagnosis is fully as important to him as the technic of operating. The language of these two great branches is similar, but not exactly alike. He then gave the surgical synopsis which he has had in use for many years at the New University and Bellevue Hospital Medical College. It was as follows: 1. Definition; 2. Anatomy; 3. Pathology; 4. Causation; 5. Symptoms and Signs; 6. Diagnosis; 7. Complications; 8. Treatment; 9. Prognosis; 10. Sequelæ. Clinical teaching is absolutely essential but didactic lectures are equally important. No student can graduate and become an intelligent practitioner of surgery without having been taught by a combination of the two methods.

The Teaching of Surgery.—Dr. H. L. Burrell of Boston said that it was impossible for him to give more than a mere outline of this paper, which had reached monographic dimensions; he had assigned some of its subdivisions to members of the Association for subsequent discussion. Many of his conclusions and remarks were based on information that he had gathered by writing to the heads of departments in educational centers all over the world. He concluded that a great deal of individuality must be shown by the teachers, and that no laws could be laid down for the government of any one man or of any one subject. Personal contact with the cases is essential to the student's success; some learn by seeing; some by the touch, some by the ear; there is no universally best method. That there should be extramural teaching was very definitely established in his mind.

Dr. Matas of New Orleans spoke on didactic lectures, the topic assigned him by Dr. Burrell. He said that in the University of Tulane they were striving to follow the example set by the richer universities of the North, and he felt that vast gains had been made by his department in the last six years. Didactic lectures must retain a very important part of the curriculum; they afford to the student a panoramic view, while the clinical teaching is essentially minute. He has classes in the first year in minor surgery, in the second of physiology surgery, in the third of surgical pathology, in the fourth of regional surgery. The didactic course was given in the third year only.

Dr. Eliot of New York spoke on recitations. He said that surgery was naturally subdivided into two great parts, the practical and theoretical. Without the recitations no student can become thoroughly familiar with the work whether the head of the department covers it in detail or only in part. There has been great advance since his student days at Columbia; the students are now encouraged to confess their shortcomings in conferences, and they are not criticized for not knowing a detail, but rather for hiding their lack of knowledge.

Dr. Richardson, in discussing surgical anatomy, said that most assuredly it should be taught by surgeons; they alone are in a position to know what parts of this broad domain are of practical value; the course should be compulsory.

Dr. DaCosta of Philadelphia speaking on technic said that it was difficult nowadays to impose upon the student the old clinical forms of bandages and other dressings in the face of so many new and perhaps more valuable details; nevertheless he regretted that there should have been such an absolute loss of these old methods because they possessed considerable value; the use of the gauze bandage had been largely responsible for this, and had been permitted too free a distribution. In the bandage courses which he taught living models were always used.

Dr. Moore of Minneapolis said that an early orthopedic training had taught him the absolute necessity of baring the whole body for physical diagnosis; if this is accorded to children why deny it to adults? Students should be taught the normal variations of the body, the difference in the length of the extremities, the position and surgical importance of the prominences.

Dr. Brewer said that in the section teaching at Columbia a sort of consultation method had been devised which was of the conference type; in it all the work was done by the students, and an interest was produced not seen with any other method. More important even than this, it taught the students the method of arriving at exact diagnoses.

Dr. Weir spoke on clinical instruction; he said that perhaps to the detriment of the courses didactic instruction had been much abrogated in New York, one lecture a week, which he and his colleagues had allowed themselves had proved insufficient and a change would probably be inaugurated.

Dr. Bell said that at McGill they felt very distinctly that the tutorial system was essential, and to this end the house surgeon was given charge of senior students, each of whom was obliged to prepare a thesis.

Dr. Finney said that at Johns Hopkins the students do not see a patient for the first two years; in the third year all operations which can be done are performed on dogs, because they have found that living wounds differ very materially from dead wounds.

Dr. Nancrede said that he and his colleagues felt that all human work should be preceded by work on animals, and the student was obliged to operate on his dog, to care for it, to carry out every detail just as though it were a human being; and that if the dog died it was credited against the student. He was happy to see from this discussion that all the schools of high type were carrying on the same sort of work.

Dr. Ochsner said that for good surgical teaching it was essential that the school have control of a good-sized hospital; the contact of the student and the patient should be long continued, and is indispensable. To this end he advised that hospitals have small wards with perhaps not more than six beds.

The Association then adjourned to the Albany Hospital, for an inspection of this building. Dr. Vander Veer read a paper on The Essentials of Modern Hospital Construction, in which he gave the details followed in the erection of the new building. It cost $292,000 and the expense of running it is about $80,000 a year. One important point which has proved very useful in gathering this sum together has been the arrangement of the rooms, which were graded for patients who could afford to pay from five to thirty-five dollars a week. Every effort was made in the construction to surround the patients and their friends with every possible comfort. The hospital is on the pavilion system, has its own electric-light supply and is modern in every way. Members of the staff gave lucid explanation of the working of the hospital technic, and Dr. Macdonald then showed a case of splenectomy and cholecystotomy, which was progressing well, and Dr. Vander Veer showed a case of gastrectomy of four months' standing in which the patient had gained about sixty pounds and was about to take a good-sized meal.

Third Day—June 5th.

Complications Following Gastro-enterostomy.—Dr. W. J. Mayo said that during the past ten years in which gastro-enterostomy had been done at St. Mary's Hospital, there had been but ten deaths. Mortality in his malignant cases had been 20 per cent.; in the benign series 6 per cent., giving a general average of about 9 per cent. The causes of death were as follows: Exhaustion, 3 cases; exhaustion in which pernicious vomiting was a factor, 2 cases; progressive asthenia, 3 cases; separation of anastomosis from the stomach-wall, 2 cases. The most far-reaching portion of this leading paper was the observations on the prevention of pernicious vomiting. If the site of the anastomosis be at the absolute bottom of the stomach-pouch it matters not whether the anastomosis be made anteriorly or posteriorly, there will be no vomiting. Antero-anastomosis should be done at the time of primary operation because if the opening be at the most distant portion of the stomach there will be no need for it. It is, however, a valuable makeshift, and is more often indicated with suture than button; the latter has the disadvantage of sometimes dropping off into the stomach even though the operation be done posteriorly. As to the contraction of the orifice, he stated positively that this does not take place unless the pylorus is either open at the time of operation or opens later. This may be brought about by the healing of an ulcer for which the gastro-enterostomy may have been done, which ulcer, situated near the pylorus, had produced such an amount of inflammatory reaction as to close it. With the healing process this reaction diminishes and the pylorus becomes gradually patent, not, however, at times, at the same rate that the anastomotic orifice closes. One may, therefore, conceive of the stomach having two outlets, the combined capacity of which is insufficient for the transmission of its contents. This very naturally leads to the formation of the "vicious circle." Experience has taught that if the anterior operation be done, fourteen to fifteen inches of jejunum must be left above the anastomosis; for the posterior operation about ten inches. This is of importance, because no one can tell that a secondary entero-anastomosis may not become necessary. He was obliged to reoperate in five cases, one for secondary ulceration involving anastomosis, three for secondary contraction of the anastomotic orifice. In one of those cases in which the pylorus was not obstructed, a posterior operation, the patient died because the gut left above was too short to permit of perfect drainage through a secondary entero-anastomosis. In one case of anterior operation the small bowel prolapsed through the loop, causing chronic obstruction.

Dr. M. H. Richardson admitted that Dr. Mayo was past master of this important branch of surgery, and that he did not feel competent to do more than praise his brilliant work. In his own cases the conservatism of others had prevented him from performing gastro-enterostomy at a sufficiently early date to make it successful. Many of them had been moribund prior to operation and although every effort was made to prepare them for the operation and to support them after it, few of them rallied. He has preferred making efforts to restore the patency of the canal at the pylorus by doing one or other of the plastic operations upon that area. That the vomiting may not in all cases be due to anatomical failure, as Dr. Mayo suggested, would seem to be shown by a recent case upon which he had successfully operated and in which the occasion arose some time after to do a pyloroplasty; although there had been very serious vomiting after the gastro-enterostomy he found on examining the site that it was perfect anatomically in every detail and situated at the base of the stomach; nor was there any spur present which might have accounted for the distress. He did not mean unkindly to criticize gastro-enterostomy; it was simply that he had not been fortunate in obtaining a favorable case and also that he had a feeling that the procedure was perhaps less surgical than the rehabilitation of the normal channels.

Pyloroplasty, with Report of a New Method.—Dr. J. M. T. Finney gave an interesting account of the plastic work of the stomach since its inception in 1886. He showed diagrams of his new technic which he has carried out in five cases with very perfect results. The technic of this operation is as follows: He places a posterior row of sutures between the first portion of the duodenum and the pylorus; about two and one-half inches anterior to this row is placed a second series; these are all of the Halsted type. Incision, which is in the form of an inverted "U," is next made and the opposing sutures tied. It is simple; there have as yet arisen no complications which contradicted its use, and he thought that it seemed to have a broad field of usefulness. The very important point in the technic is to free the pylorus and the duodenum absolutely from the many adhesions prior to operating. The pylorus must be absolutely free; this is done before any sutures are placed. Three temporary sutures serve to hold the freed organ well out in sight. The pyloric opening gained by this procedure is about two and one half inches in diameter.

In the discussion of Dr. Finney's new operation Dr. Bevan said that he preferred the suture to the button because with good technic not more than five minutes should be consumed in sewing. In twenty to twenty-five per cent of cases the Murphy's button is retained and while in many of these it does no harm, it is not a desirable thing to have so large a foreign body loose in the alimentary canal. He found Dr. Finney's operation rather complicated. The Kocher pylorectomy is simpler and would meet all indications. He very strongly decried the use of interrupted sutures stating that they had no place in intestinal surgery; the continuous gives a more even tension and better controls and hemorrhage.

Dr. Meyer of New York said he had done about thirty cases of gastro-enterostomy and had used all methods; he had been so fortunate as not to encounter the "vicious circle." The posterior operation is undoubtedly the better partly because of less liability to vomiting, partly because the loop formed in the operation anteriorly is always a possible source for internal hernia. The anterior operation is easier, but if a button be used it is much more apt to fall into the stomach. Dr. McGraw's elastic ligature is a most admirable device and he recommended its employment in the establishment of anastomoses in this area. Sufficient gut must be left above the anastomosis to do entero-anastomosis by the ligature subsequently if necessary.

Dr. Harris said that because of the rotation of the stomach wall growth, which is brought about by the posterior wall growing more rapidly than the anterior, the inferior vessels are usually found above the lower margin of the sac and in front. This is so true that a lad upon whom he had recently operated for a bullet wound in the anterior abdominal wall had the posterior surface of the stomach perforated twice by the bullet, while the anterior wall remained intact.

Dr. Kammerer of New York said he had done the posterior operation during the last thirty cases with Murphy's button; the results are so much better that he has entirely given up the anterior operation. He had had no vicious circle in the last thirty cases; this he attributed to the fact that the anastomosis had been made at the bottom of the stomach. He in no way agreed with Dr. Bevan that the interrupted suture has no place in intestinal work; on the contrary he felt that it had a very distinct and important part to play.

Dr. Weir said that he had done about thirty-three operations of gastro-enterostomy; in the first ten there were four deaths, and in all these the circle was a prominent factor. Suturing the gut to the stomach, which had been suggested as a means for preventing anatomical displacement by lifting it up in a measure, is a procedure of no value to prevent contracture; he no longer advocates the twisting of the gut, because it has been shown to possess absolutely no importance. Recently he had used the posterior operation done with a large flanged Murphy's button combined with entero-anastomosis, and the results were admirable.

Dr. McGraw said that gravity is not the factor to consider in the circle, but rather the relation between the peristaltic power of the gut and of the stomach; if the stomach be depraved, worn out and weak, as are these stomachs, it is not difficult to see that the gut which has existed for many months under somewhat better conditions than the stomach should have greater power. Like Dr. Richardson, most of his cases have been moribund, and his statistics were bad. He made a plea for the use of his elastic ligature on the stomach, which he said many surgeons seemed to fear because it might not cut through. It will cut through if one uses a strong elastic and ties it tight.

Dr. Ochsner said that his results were so bad that he had entirely abandoned gastro-enterostomy until Mayo taught him how to do it. He is convinced that the successful working of this operation depends entirely upon the establishment of drainage.

Dr. Rodman said that the anterior operation can be made practicable, as has been shown by Mayo's eighty successful cases; a point somewhere within the second fold of the jejunum must be chosen.

Dr. Mayo, in closing, said that there were certain indications for the anterior operation, namely, anomalous distribution of the superior mesenteric artery and certain cases of peculiarly fat short mesentery. He could not agree with the gentleman who said that gravity played no part in the vicious circle; all gastro-enterostomies done for ulcer of the pylorus are apt to give trouble just as soon as the ulcer begins to heal; this may be a contraindication to the operation. In cases of permanent obstruction of the pylorus nothing is better than gastro-enterostomy. Entero-anastomosis is unnecessary for the prevention of the circle, but it must be used if the pylorus is to remain open.

Surgical Treatment of Tuberculous Peritonitis.—Dr. Ochsner said that surgical treatment gives 50 per cent. of recoveries in those cases which have chronically refused to react to medical treatment. This would seem to show that the medical treatment was better than the surgical, inasmuch as it is free from danger, but it must be remembered that 50 per cent. recoveries in surgical cases is a very different proposition than the same percentage in the medical cases, because they are all of a much graver type. Surgery does its work late, medicine does its early; thus they cannot be compared. The immediate death-rate from the operation is very slight; it is the seemingly hopeless cases in which a simple laparotomy gives benefit, and the simpler the better. He then cited numerous cases, and pointed with pride to one in which the operation had so far restored the health of a chronically sick woman as to enable her to give birth to a child with normal labor. His conclusions were as follows: (1) Medical treatment should always be long continued inasmuch as those operated on in the earliest stages often recur. (2) All food should be sterile, with attention to hygiene and all known medical methods of combating tuberculosis most vigorously insisted upon. (3) This treatment should be continued if the case improves. (4) If not, it should be operated upon. (5) If the tuberculosis be confined to one organ without denuding the peritoneal surface, it should be done. (6) If fluid be present, do not remove any tissues. (7) The absorptive power of the organism of tuberculous material is wonderful. (8) The operation consists in admitting air thoroughly and then closing, with drainage. (9) Int stinal fistulæ are usually the product of too much surgery. (10) During recovery from operative intervention medical treatment must be carefully given. (11) Chronic cases with the encapsulated fluid are particularly susceptible to operation. (12) Repeat operation if necessary.

In the discussion which followed, Dr. Bevan said that all would agree in regretting Dr. Fenger's absence. He had shown conclusively the futility of opening the abdominal cavity; the recovery which appears to follow it is only a seeming one; because of this all the recent cases at the Presbyterian Hospital have been turned over to the internists who, under Dr. Billings, have treated the cases with the X-ray. He cited two cases in which this treatment had apparently caused improvement.

Dr. Burrell arose to disagree with each of the last speakers. It is not easy to diagnose abdominal peritonitis; grossly there are three types, the matted, the acute exudative and the chronic. He thought it very doubtful that a chronic encapsulated tuberculosis exudate would yield to the X-ray treatment.

Dr. Mayo said that in the absence of fluid the cases might well be termed medical; but one might just as well attempt treatment of ovarian cysts by the X-ray as surgical forms of tuberculous peritonitis.

Dr. Richardson said that some of the most brilliant successes in all surgery have come from the removal of tuberculous masses from the abdomen; he thought Dr. Bevan had gone too far in his denunciation of surgical intervention, and agreed cordially with Ochsner that mere opening of the abdomen has given undoubted and wonderful cures.

Dr. Weir agreed that the medical condition was not one suitable for intervention, but said that since he had seen the marvelous effect of operation on tuberculous peritonitis, in a patient upon whom he had subsequently to do a secondary operation for a different disorder, he had been a firm convert. In four months' time after operating, every miliary tubercule had disappeared.

Extirpation of a Leucocythemic Spleen.—Dr. McGraw had done this operation on a child eight years of age. A tumor had appeared, the blood and all other systems giving all the evidences of leucemia. The removal, which unhappily was tardy, gave no particular difficulty, but the child gradually faded away and died in six hours. Bits of this child's spleen were transferred to guinea-pigs, but at the end of half a year, when the animals were killed, there were no signs of leucocythemic infection. In order to increase knowledge as to the relation existing between the spleen and the development of leucemia, a series of cases should be prepared in which the spleen had been excised at a very early date; this incidentally would do away with the danger of hemorrhage from adhesions, which is usually frightful and often leads to death.

Cancer of the Appendix.—Dr. R. H. Harte reported two cases of this condition. He said that in reviewing the literature he had been able to find but seventeen cases of primary carcinoma of the appendix; in most of these there had been a history of recurrent appendicitis and the author suggested that this was an additional reason for prompt operative intervention. He also urged that very careful routine microscopical examinations should be made of every appendix removed.

Dr. Gerster of New York said that this must be a very rare condition, because in the last twelve hundred cases of appendicitis at Mount Sinai he could recall but two of carcinoma of the appendix. They produce symptoms only when the tumor stops the opening of the appendix and thus gives rise to an ordinary attack of appendicitis.

Dr. Matas said that in over one thousand cases he had never seen a single example.

The Radical Operation for the Cure of Aneurisms.—Dr. R. Matas said that there were two fundamental surgical methods of treating aneurisms of the extremities; the first the Antyllian, the second, extirpation, which has wrongfully been ascribed to Phyllagrius. He related in considerable detail the history of the surgical treatment of these aneurisms, particularly the efforts made in the last century and preantiseptic days. He illustrated his method by a series of diagrams which made it clear. It consists in the application of an intersaccular purse-string suture for the obliteration of the channel or channels connecting with the vessel. The more important features of the operation are (1) construction by an Esmarch or digital compression; (2) free incision of the sac; (3) the obliteration of the opening; (4) the inversion of the walls of the sac and tacking down of the skin. This technic gives a depression where formerly there existed a tumor. He applies free drainage and immobilizes in plaster of Paris; although there are certain types of aneurism in which this operation is either inapplicable or has to be somewhat modified. In general its procedure is as follows: (1) The intervention is from within, there being no external dissection and consequent injury to nerves and surrounding tissues. (2) It does not disturb the collateral circulation and there is less fear of gangrene. (3) It may even be so happily compassed as to allow the aneurismal feeder to remain patent. (4) It lines the cavity with skin and thus gives a very hasty recovery.

Dr. Gerster welcomed this operation because of the great difficulty which exists in dissecting out the sac. He felt very sure that it was a distinct and valuable addition.

Dr. Eliot of New York said that the surgical treatment of aneurism differed in the upper and lower extremities; above, the anastomosis was so generous that it can be cut out without fear of gangrene; below, however, he thought Dr. Matas' operation would be of very great value because of the comparatively small blood-supply. It depended also somewhat in its application, in his opinion, on the nature of the aneurism; if it were friable, the sutures would tear out; therefore it would seem on first thought that the traumatic type would be more amenable to Dr. Matas' treatment.

Dr. Matas, in closing, said that it was impossible to cover every type of aneurism, but that serious accidents with other methods had made him consider the matter very seriously. Even in very advanced atheromatous conditions the sutures hold well and remain blood-tight. An anomalous supply to the section often defeats the Antyllian method.

The Influence of the Roentgen Ray upon the Different Varieties of Sarcoma.—Dr. Coley said that it had been used as yet in comparatively few sarcomata; he had, however, had ten cases under observation, and while he could report no positive cure, yet there was in each and all a marked and wonderful improvement. He had tried the experiment of using the toxins in conjunction with the X-ray, and had elicited a happy result; but whether it was due to the combination of the two or to the single action of either, he was not prepared to say. When it is considered that sarcomata often appear in the most inaccessible regions, as for instance in the neck, although no one knows how or why the rays work, it must be to all a most welcome agent. There is, peradaventure, some force in the actinic rays, which exerts inhibitory power on tissues of low vitality and eventually causes them to disappear. It would seem to be a factor in favor of the parasitic origin of these growths.

Dr. Richardson said that everything possible should be done to encourage the use of the X-ray in apparently hopeless cases of sarcoma; he cited a number of cases which he had sent to Dr. Coley for treatment in which there had been a marked and wonderful improvement and even recovery.

Dr. Gerster said that the old German surgeons got as good results with potassium iodide and other agents as we are now obtaining from these new-fangled media. The X-rays, in his opinion, do not effect cures; they are palliative and attractive in perhaps appealing to the patient. There is too much tendency to accept as final the statements as holy writ, and there are many cases on record where syphilides have been mistaken for sarcoma.

Cysts in Connection with the Teeth.—Dr. J. C. Oliver of Cincinnati said that these cysts usually occur before the thirtieth year, and the most frequent site is the third molars of the lower jaw, the canines being next. The cysts occur in the permanent teeth. Whatever their origin may be, whether due to a misplacement of the dental apparatus by various forces, or to dermoidal remains, or to a failure of evolutionary processes, the treatment is always to incise before the jaw is removed. It often happens that these are mistaken for sarcomatous growths inasmuch as they contain cells which resemble these tumors. The diagnosis is made on the following points: (1) Absence of the tooth; (2) cystic nature of the swelling; (3) crackling (not constant); (4) exploration.

Implantation of Silver Filigree for the Closure of Large Hernial Apertures.—Dr. Willy Meyer, of New York exhibited types of filigree which he had imported from Germany and used with great success in closing the otherwise large hopeless openings of ventral hernia. He suggested that the use of this filigree need not be limited to the closure of hernial orifices, but could be applied to any orifice, made either by trauma or in the course of removing neoplastic growths. The meshes remain in the abdominal wall kindly, on account, no doubt, of the peculiar action of the tissues on the silver.

Report of Two Cases of Exophthalmic Goiter Treated by Operation.—Dr. Emmet Rixford, of San Francisco defined the relation of surgery to-day to this disorder. There are very distinct contraindications to operation, one of which is a seriously involved heart. The operation should be done in periods of quiescence. In no class of cases does greater danger exist from anesthesia, and this has led him to use cocaine. As to the type of operation, a partial thyroidectomy seemed to be preferred in this country. Although Jaboulay and Jonnesco in Europe had met with success in their resections of the cervical sympathetic, it had not been so successful here. He cited cases of his own and others in which hemisection of the thyroid had proved very beneficial. One peculiarity of the operation is that it almost always leads to a marked increase of the gravity of the symptoms; this, however, usually passes away in a few days.

An Improved Instrument.—Dr. S. H. Weeks, of Portland showed a sound with filiform bougie attached, with which he had been able to successfully pass a number of strictures, and he believed that if this instrument were put into the hands of general practitioners there would be fewer false passages made.

The Present Status of the X-ray as a Means of Diagnosis and as a Therapeutic Agent.—Dr. A. D. Bevan allowed his exquisite collection of photographs to speak for him in great part. They were not all of his own making, the most prominent operators in this line in Chicago, which has indeed been the hotbed of this work, having contributed to his collection. He stated that he was not alone in the opinion that the report of the Association on the X-ray, while admirable in all details, should be reviewed because of the great progress which had been made since its drafting. Every hospital should have an X-ray specialist just as surely as it has a pathologist. It is undeniable that burns may occur, and in the majority of cases photographs of which he showed they did occur. There is absolutely no use in attempting to treat deep-seated carcinomata; it is only those of the epitheliomatous type, or recurrent tumors of the breasts which yield to the ray. He urged the Association that a definite stand should be taken, lest in the enthusiasm for this new method there might be awakened among the laity a belief that primary carcinoma of the breast and other organs, which are now admittedly curable in a large proportion of cases by the knife, would, because of the fear of the individual, fall into the hands of unscrupulous X-ray operators. This is an accident greatly to be dreaded, as it only means that the unfortunate individual would become hopelessly involved, and the use of the knife accepted too late. The photographs showed almost inconceivable results; they were all of the superficial neoplasms, but there was one showing the effect of treatment of leucocythemic nodule in the axilla, which disappeared in three weeks after having resisted every other form of treatment, which was perhaps as extraordinary as any.

Dr. Vander Veer had had many cases similar to those shown in Dr. Bevan's photographs, and he cordially agreed with him that there was great danger of the laity jumping at the conclusion that in the ray they possessed a curing agent which would shield them from the use of the knife. This it must be distinctly understood is not the case. The ray affects only those malignant tumors in which the skin has been broken; it should be used as a prophylactic after operation, not as a substitute for it.

NEW YORK ACADEMY OF MEDICINE.—SECTION ON ORTHOPEDIC SURGERY.

Stated Meeting, Held April 18, 1902.

George R. Elliott, M.D., Chairman.

Dr. J. H. Waterman presented the case of a child with congenital elevation of the left scapula. The X-ray revealed the condition of elevation and also a bony plate running from the spine of the scapula to the seventh cervical or first dorsal vertebra. The advice of the Section was asked as to treatment. It was stated that Wilson of Philadelphia had reported two cases treated by operation. In standing the elevation of the shoulder was marked and the head was held slightly inclined to the left side.

Dr. Russell A. Hibbs said he had observed a similar case in a subject twenty-five years old, showing also a plate of bone connecting the scapula and the seventh cervical or first dorsal vertebra. He advised operation in the case presented by dividing the bony attachment.

Congenital Dislocation of the Hip.—Dr. Royal Whitman presented a series of ten cases illustrating the treatment of congenital dislocation of the hip. The cases were of interest as demonstrating the curability of the affection. In the entire number there had not been a relapse since treatment had been discontinued. With one exception the patients had been operated upon by the bloodless method of Lorenz, slightly modified in certain instances. At the present time, as would be evident upon inspection, it was impossible to say which limb had been treated. The record of the cases is as follows: (1) C. P., female, dislocation of the left hip, operated upon at the age of nineteen months, April 19, 1897. The plaster bandage was removed on October 12, 1897. (2) O. H., female, dislocation of the left hip, operated upon at the age of five years, May 20, 1889. Plaster bandage removed March 15, 1898. (3) L. S., female, dislocation of the left hip, operated upon at the age of nineteen months, November 15, 1897. Plaster bandage removed June 15, 1898. (4) C. F., female, dislocation of the left hip, operated upon at the age of two and a half years, October 11, 1899. Plaster bandage removed June 2, 1900. (5) A. C., female, dislocation of the right hip, operated upon at the age of two and a half years, January 28, 1900. Plaster bandage removed August 9, 1900. (6) V. R., female, congenital dislocation of the left hip, operated upon at the age of four and a half years, January 31, 1900. Plaster bandage removed August 22, 1900. (7) E. R., female, dislocation of the left hip, operated upon at the age of two years, May 22, 1901. Plaster bandage removed September 13, 1901. (8) F. C., female, dislocation of the left hip, operated upon at the age of four years, July 2, 1901. Bandage removed January 7, 1902. (9) M. L., female, dislocation of both hips, operated upon at the age of two years, May 10, 1899. Plaster bandage removed November 10, 1899. A perfect cure on the right side, not perfect on the left. (10) M. A., female, dislocation of the left hip, operated upon at the age of five years, October 30, 1900, by arthrotomy, without excavation of the acetabulum. Plaster bandage removed October 10, 1901. Perfect cure.

Dr. Whitman said that Case 5 had been of much interest. On removal of the spica bandage a limp had persisted for many months accompanied by slight outward rotation of the foot. If the limb were rotated slightly inward the X-ray picture showed an apparently normal joint. The persistence of the limp was due apparently to laxity of the capsule and to slight anterior twist of the upper extremity of the femur. To his surprise the child had steadily improved and at the present time, more than a year and a half after the discontinuance of treatment, there was practically no trace of disability.

In Case 9, the bilateral displacement of the left hip was originally recorded as a transposition, but after a lapse of nearly two and a half years there was no shortening and but a very slight limp. The head of the bone was apparently secure in a position slightly anterior and external to the normal. This result was far better than after the ordinary transposition, in which there were always a certain amount of shortening and a characteristic limp. The case in which arthrotomy was performed was not only of interest as showing the perfection of the cure obtained by this method, but also in that the patient is one of three children of the mother, each having congenital dislocation of the left hip. The eldest child, now about eighteen years of age, was untreated and presents a shortening of the limb of three inches. The second child, after three unsuccessful attempts by the bloodless method, was operated upon by the Hoffa-Lorenz method with excavation of the acetabulum on October 25, 1898, at the age of five years. The final result was very satisfactory.

Dr. R. H. Sayre considered that the result of the cases presented a great advance in the treatment of congenital dislocation and that a few years ago such a collection of successful cases would have been impossible.

Dr. George R. Elliott said the remarkable showing of good results by Dr. Whitman ought to answer fully those still skeptical about the non-cutting operation. He noticed that the patients were all apparently under four years of age at time of operation. A very large percentage could be cured at that age. The Lorenz method, even if it did no good, certainly did no harm, and in older cases warranted its use before cutting was resorted to. He further said that it could usually be determined at time of operation what the final results would be, at least such was his experience. He asked Dr. Whitman what percentage of his operations showed failure, and if he reduced both hips at time of operation in double congenital hip dislocation.

Dr. Whitman stated that in the case of bilateral displacement both hips were treated at one sitting. He said that he had modified the Lorenz method somewhat, in that he usually extended the plaster bandage below the knee, the leg being flexed upon the thigh at a right angle, with the object of fixing the part more securely. At the end of two months the leg portion of the bandage was removed. In certain instances the femur was rotated slightly inward, in order to fix the head of the bone directly beneath, or slightly internal to, the femoral artery. He had on other occasions stated that not more than twenty-five per cent. of the cases were cured by this method, but the indications in his later operations were much more favorable. He did not agree with the statement of the last speaker, that the result of treatment could be foretold at the time of operation. In many instances an anterior twist of the upper extremity of the femur made failure inevitable, and in many instances arthrotomy and osteotomy would be essential, excavation of the acetabulum being reserved for exceptional cases.

Coxa Vara.—Dr. Whitman presented a boy about seven and a half years of age, illustrating the cure of coxa vara by cuneiform osteotomy at the base of the trochanter. The patient had been presented to the Section at a previous meeting by Dr. Taylor. According to the mother's account, he had limped ever since he began to walk. Although the operation was performed but five months ago, the functional cure was perfect.

Alcoholic Arthritis.—Dr. Elliott presented the case of a boy aged twelve years, who some three years ago began to have swelling of the joints of the fingers and wrist. The right wrist, the distal joints of the fingers of both hands and the distal joints of the first and second toes were involved. The liver was enlarged, projecting below the umbilicus, the spleen was enormously enlarged, and there was only a slight enlargement of the lymphatic glands. The mother stated that as the boy was not strong she had given him whisky daily for about one and a half years. He regarded this as the etiological factor of what he thought could rightly be designated alcoholic arthritis. Arthritis deformans was excluded since that grows progressively worse and is not accompanied by enlarged spleen. Under proper nourishment and little general medication the symptoms had nearly all disappeared. Heberden nodes still persisted, something very rare in children.

Destruction of the Lower Epiphysis of the Tibia.—Dr. Hibbs presented the case of a boy aged eleven years, first seen, October, 1900, with deformity of the right tibia following a severe fall and supposedly resulting in fracture. The deformity was corrected by osteotomy. He suspected that the lower epiphysis of the tibia had been injured and this was corroborated by the recurrence of the deformity after operation. At time of operation the right tibia was 12⅛ inches long and the left 13. If left untreated the deformity would progress. Members of the Section were asked if they had had any experience in the treatment of such cases by destruction of the epiphysis of the fibula.

Dr. Whitman said that a member of the American Orthopedic Association had made the statement at its last meeting that he suffered from a disability similar to the case reported, that his fibula was two inches longer than the tibia, yet the disability and deformity were so slight that from his personal experience he had advised against operation such as had been suggested.

Dr. Sayre said he thought destroying the epiphysis of the fibula as suggested by Dr. Hibbs would not result in as useful an extremity as by leaving the limb untreated, since it would produce considerable shortening. He suggested slitting the tibia lengthwise, sliding the pieces past each other and so lengthening the tibia sufficiently to bring the articular surfaces parallel with the ground.

Dr. Hibbs also presented a child aged five years, when first seen by him in October, 1900. One month previously it had been operated upon in a general hospital for osteomyelitis of the lower end of the right femur. This was followed by complete paralysis of the quadriceps extensor. This paralysis persisted with no response to either electrical current. No other muscle was affected and it was believed to be due to division of the tendon or muscle with failure to unite.

Fractured Vertebral Column.—Dr. Elliott presented a specimen of a fractured vertebral column removed from a man aged twenty-nine years, first seen in 1897. One year prior to that he attempted to hold a quarter of beef which had slipped from its pin and immediately felt a severe pain in his back. He remained in bed one week. He then attempted to go about and did so for one year with gradually increasing motor and sensory paralysis of both lower extremities, and there developed a marked kyphosis at the tenth dorsal vertebra. Plaster jacket did not improve matters. The paraplegia became complete. He was subsequently operated upon by Dr. Gerster at the Mount Sinai Hospital and evidence of fracture was found with bony fragments pressing upon the cord. These were removed, but Dr. Gerster expected no benefit to result. The patient finally died and the cord was found completely severed. The progressive nature of the paralysis and the absence of involvement of the bodies of the vertebræ, with a well-marked kyphosis, were interesting features; also the faulty diagnosis of caries which at one time had been made. The angular prominence simulated very closely the "bos" of Pott's disease.

Dr. W. M. Leszynsky considered the history of the case very interesting and thought that it was hardly probable that anyone from the history would have made a diagnosis of fracture. H thought there was a slight injury to the cord and dura which set up a myelitis secondarily, becoming finally complete with ultimate destruction of the cord. It was well established now that complete division of the cord produced loss of all reflexes below the site of section. He cited a case of his own of a patient who had fallen from a height of twenty feet, fracturing the tenth, eleventh and twelfth dorsal vertebræ with immediate paralysis and complete loss of reflex action, sensory and motor power. The diagnosis was readily made in that case and confirmed at autopsy.

Early Treatment of Disability Following Infantile Paralysis.—Dr. A. B. Judson reported a case of varus of the left foot in a boy of five years. Leverage by braces cured the varus but could not remove the paralysis of the calf muscles and calcaneus. The riser was omitted from the inner side, where it had given leverage against the varus, and the upright was made of one piece with the tread, which was shaped to the instep and could readily be bent down or up as the boy required more or less "toe" in walking. With this brace (exhibited) walking was without a trace of lameness. Deformity had been prevented and fibers developed which without early locomotor activity would have disappeared.

Dr. Charles H. Jaeger presented a specially-made gouge devised by a French surgeon for the purpose of scooping out the acetabulum in operation for congenital dislocation of the hip.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Stated Meeting, Held February 18, 1902.

S. Lewis Ziegler, M.D., in the Chair.

Glaucoma or Optic Atrophy?—Dr. Conrad Berens presented a case for differential diagnosis between glaucoma as expressed by the ophthalmoscopic changes and optic atrophy as evidenced by the other data. Dr. P. N. K. Schwenk favored the atrophic theory. Dr. Berens stated that the case at first appeared like one upon which an immediate iridectomy for glaucoma should be performed; the symptoms, however, subsequently yielded to treatment directed toward incipient optic nerve atrophy. He had found that the papillary vessels were not plunging, and the choroidal and peripheral retinal ones could not be determined. He had postponed operation for the following reasons: The anterior chamber was full; the corneal epithelium was in good condition; and the irides were freely responsive. He nevertheless feared a glaucomatous attack. For a period of three months the patient had had frequently repeated and large doses of sulphate of strychnine several times daily without any physiological symptoms and with improvement in one eye.

Dr Walter L. Pyle presented transcripts of the fields of vision of the case, and called attention to the fact that those for color were not disproportionately contracted. The red and the green fields of the right eye were slightly contracted, especially the former. They were properly related. There were central color scotomata. The color fields of the left eye were concentrically contracted, particularly to the temporal side, but there were not any symptoms of glaucoma in the anterior segment of the eye. He had found that the optic nerve cupping was not deep—merely a shelving, as it were, over which the small retinal vessels could be followed. He believed that the peculiar feature of the case was the fact that the color-fields were not disproportionately contracted as one would expect to find.

Dr. S. D. Risley thought the mixed atrophic appearances were dependent upon a physiological excavation and an unusually rigid sclera. He suggested the presence of a retrobulbar neuritis as evidenced by the contracted visual fields and the central scotomata. He would avoid operative interference.

Dr. William Zentmayer stated that in studying over one hundred cases of glaucoma occurring in the clinics of Drs. Norris and Oliver at the Hospital, he had found that the supposed characteristic cutting off of the nasal portion of the visual fields did not exist in the majority of cases. He had found that there generally is a concentric contraction of the fields and occasionally central scotomata.

Dr. Ziegler mentioned a case with deep physiological cupping and possible slight increase of tension that occurred ten years previously. The irides were responsive. There was not any dilatation of the pupils. The retinal vessels dipped considerably into a cupping in the optic nerve head which was some five diopters deep. One eye was operated on early, retarding the condition; the other was operated on later. The man returned with an attack of acute glaucoma.

Dr. Frank Fisher had seen Dr. Berens' case the first day that it was brought to the Hospital and believed that it was one of optic neuritis with atrophic symptoms. He still held to the same diagnosis, and could not admit glaucoma.

Dr. Charles A. Oliver stated that glaucoma complex occurred in many forms. This case was most probably one, he believed, of secondary type that made a picture of what may be spoken of as posterior glaucoma. The condition would eventually lead to blindness. Iridectomy in such cases is of no value. In most of these cases there are temporary blockings of the lymph-streams posteriorly, accompanied by ephemeral though definite rises in intra-ocular tension. The condition, he said, is sometimes benefited by treatment directed toward various causative dyscrasiæ, such as rheumatism and syphilis. The appearance is totally unlike the grosser forms of anterior glaucoma. The inflammatory signs often consist in associated low-grade retrobulbar neuritis giving rise to the so-called mixed type of the disturbance.

Abscess of Frontal Sinuses.—Dr. Berens presented a case of abscess of both frontal sinuses in which T-shaped drainage-tubes were to be inserted. The patient's condition at the time of the meeting, however, was so bad and so much hemorrhage had taken place that he had decided to drain but one side, leaving the other for a subsequent time when the patient's condition had improved. He stated that in this case a probe could be passed from one sinus to the other. He mentioned another case in which he had successfully used a system of T-shaped drainage-tubes to advantage. During the operative procedures the patient almost died on the table. He persisted, however, with a good result. A few days before the meeting he again had an opportunity of seeing the patient and found that the nasal passages were in excellent condition. A special point in the operation, he believed, was the frequency of extreme hemorrhage, which should always be carefully prepared for. The method of drilling through the bone was detailed. Personally he preferred to employ a double-edged cutting drill. He called special attention to the method of passing the tube through the drilled opening, and thence into the cavities. For this purpose he used a rubber drainage-tube with two strains of No. 12 waxed cord passed through it and threaded on an eye probe. He had found it necessary to use main force for the purpose. He mentioned the great value of peroxide of hydrogen in these cases during the operation, stating that it does two things, namely, stops local hemorrhage and when injected through the nostrils into the stomach it causes any blood in the stomach which may have been swallowed during the operation to clot and be vomited.

Dr. Oliver mentioned the great value of the cleansing and hemostatic properties of peroxide of hydrogen. He had successfully employed it in a case of sarcoma of the orbit that had been recently operated on by him. He had used it in full-strength solution and had found that it did not do any harm.

Disease of the Orbit.—Dr. Oliver then showed a case that had been successfully operated on by him and Dr. George B. Wood for disease of the orbit, sphenoid sinuses, and antrum.

Dr. Berens spoke of a case occurring in the late Dr. Keyser's clinic at the Hospital in which the patient was saved only by untiring efforts for nearly four hours before responding. Dr. Fisher spoke of his method of dealing with such bone cases. Dr. Ziegler suggested the use of a hand drill with a rachet and pinion. Dr. Berens stated that he had tried a great many forms of instruments and had finally concluded that the double-edged drill in a bulb handle is the best because the slightest motion is communicated to the hand and thus allows the operator to know what he is doing.

Thrombosis.—Dr. Schwenk presented a case of thrombosis of the central retinal vein. He based this belief upon the sudden onset of impaired vision, the repeated patches of retinal hemorrhages that could only be found in the course of the retinal veins, the optic nerve head swelling, and the hemorrhages in the macular region. There was a systolic murmur.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Held May 6, 1902.

The President, Wendell Reber, M.D., in the Chair.

Toxemia of Pregnancy.—Dr. William H. Wells dealt with the subject under seven subdivisions, *viz.*, etiology, symptoms, pathology, diagnosis, prognosis and treatment. The most important agents in the production of this condition were thought to be incomplete metabolism and the retention of poisonous substances in the body due to the faulty action of the excretory organs. Regarding the etiology of the condition, attention was directed to the marked hepatic lesions usually found in the autopsy of women who have died from eclampsia, and the opinion expressed that the condition of the liver was in all probability the primary cause of toxemia in pregnancy, to which the renal condition was a secondary factor. [This paper will appear in full in the MEDICAL NEWS.]

Suppurative Tubal and Ovarian Disease.—Dr. J. J. Gurney Williams gave a very exhaustive history of the development of abdominal section for the relief of these conditions. In the opinion of the author many of these cases, especially among the poorer classes, are of gonorrheal origin, which is oftentimes aggravated by lack of proper hygienic measures, the latter factor also playing an important rôle even in cases in which the specific infection is not present. Regarding the etiology of the condition it was thought that in the majority of cases the infection comes from without. Stress was laid upon the importance of making an accurate diagnosis, which, owing to the varied symptoms which each individual case presents, it was thought would have to be principally made from a digital examination which should be rectal as well as vaginal. Among the important clinical symptoms to be noticed were mentioned pelvic inflammation and the character of the menstruation. The previous history and the weight, together with history of the development of each symptom was thought to be of material assistance. Extra-uterine pregnancy, appendicitis, fixed and tender tubes, small painful ovarian tumors, including dermoids, fecal impaction, retroflexion and malignant deposits about the cervix, were thought to be the most frequent conditions which the surgeon is called upon to differentiate from pyosalpinx and ovarian abscess. As to the treatment of such conditions, in the opinion of the writer abdominal section and the removal of the diseased parts was thought to be the only proper method, as every case which had come under his observation, which had at first been treated by vaginal puncture was finally compelled to seek radical treatment, the relief by the former method, if any benefit was derived at all, being but temporary. Attention was directed to the importance of the proper preparation of the abdomen of the patient prior to the operation, and while the use of any antiseptic except alcohol in the preparation of the operator and his assistants was quoted as unnecessary, the importance of cleanliness by the use of soap, water and brush, changing the water frequently, and taking many minutes to scrub, was emphasized as an important factor. The danger of puncturing some other part than was intended when the method of vaginal puncture was employed was commented upon, which, together with the fact that an absolute differential diagnosis was in most cases impossible, was noted as a strong objection to this method. The use of silk sutures was recommended in all abdominal work, and in the author's opinion the objections which have been raised to this procedure are unfounded.

The discussion was opened by Dr. Charles P. Noble, who stated that he fully agreed with the author of the second paper in regard to the etiology of the condition in the majority of cases, *i.e.*, gonorrhea. For the treatment of gonorrheal pyosalpinx the removal of the diseased part was recommended, and when both tubes were affected it was thought advisable to also remove the uterus. Abdominal hysterectomy was thought to be the preferable form of operation and in the experience of the speaker the mortality has been very much lower since he has been performing this method than before, as there is less likelihood of the formation of adhesions or the development of sepsis. For the treatment of an abscess of the broad ligament or an ovarian abscess drainage was recommended, the preference to abdominal section being based not only upon the comparative simplicity of the procedure, but it having also the advantage over the former operation from the fact that in abdominal section there is a liability to peritoneal infection. This method was thought to be particularly indicated in acute cases, when the patient is too ill to survive a more radical operation. Attention was directed to fifty-three cases in which drainage had been performed with but a single fatality, that patient being one who had lately had an abortion and who died from her previous condition. In the experience of the speaker there has been an enormous decrease in the mortality when the drainage method was pursued over that observed when radical measures were employed, and the permanency of the cure was just as frequent by the latter method as by the former.

Dr. William E. Parke stated that in the treatment of the toxemia of pregnancy he thought the most important factor was the elimination of the poisonous matters, and in regard to the diet, food of a non-nitrogenous character and particularly milk was thought to be indicated, although mention was made of the fact that there was a certain number of cases in which milk was not well tolerated, and in these cases a light diet of fruit, some starches and plenty of liquids was recommended. The value of frequent urinalyses, and particularly of the estimation of the urea and specific gravity as a control agent was commented upon.

Dr. Peter N. K. Schwenk commented upon the fact that in a case of toxemia of pregnancy which had previously come under his observation, the examination of the urine of the child revealed the presence of a large percentage of albumin, which continued for about six months after its birth. The ocular symptoms noted by the author of the paper in these conditions were thought to be accounted for by the direct connection with the pelvic organs which is established by means of the sympathetic nerve and spinal cord.

Dr. Mordecai Price stated that he believed the radical operation was the only method which would effect a permanent cure in suppurative tubal and ovarian conditions, and while he recognized the value of drainage as an auxiliary factor, he felt that alone it was of but little value except as a temporary relief in patients too ill to stand the sterner measures.

Dr. Frank C. Hammond expressed the belief that vaginal drainage was of value in many cases in which the parts have never been deeply involved and was especially indicated in acute conditions.

Dr. J. J. Gurney Williams, in closing the discussion, stated that he did not think the mortality rate in double ovariotomy in cases which had come under his observation had exceeded one to two per cent. The removal of both sides was thought to be indicated in practically all the cases when one appendage was involved, thus avoiding the possibility of a recurrence, which had frequently been observed by the speaker, when only one tube was removed. Treatment by vaginal drainage was thought to be contraindicated, except in acute conditions where the patient was too ill to undergo an abdominal section. Regarding the closing of the wound the through-and-through suture was thought to be preferable to the layer method.

BOOK REVIEWS.

CONTRIBUTIONS TO THE COMPARATIVE ANATOMY OF THE MAMMALIAN EYE, CHIEFLY BASED ON OPHTHALMOSCOPIC EXAMINATION. By GEORGE LINDSAY JOHNSON M.D., F.R.C.S.

From the Philosophical Transactions of the Royal Society of London.

IN this remarkable work, originally published in the Philosophical Transactions of the Royal Society of London, the distinguished author has presented the results of observations, mostly ophthalmoscopic, made on the eyes of a great number of mammals. The work contains 82 pages of text, 30 plates comprising 50 original large drawings of backgrounds of the eye, wonderfully executed in color; 4 drawings in black-and-white of the various types of the obliterated hyaloid artery in man; 1 plate containing 21 figures in black-and-white of primitive and retrograde forms of pecten and other vestigial remains in the ungulates, illustrating the successive stages from the corpus nigrum of the Equidæ to the functionally active unbraculum in the hyrax. One of the plates furnishes an ingeniously devised diagram showing the divergence of the optical axes in the mammalia. Besides these drawings there are observations as to the refraction of the animals examined, the divergence of the optic axes, peculiarities of the irides, pupils and other features.

The author's observations extend over a very wide field, and he tells us that it was not until a large number of animals had been examined, embracing nearly all the families of the mammalia, that he felt justified in making an attempt at generalizations.

As a zoological guide, the author has adopted the classification of the mammalia given by Gadow in his "Classification of Vertebrata" (London, 1898), which is based on the most recent morphological investigations. The special descriptive part records observations as to the appearance of the fundus oculi by means of the ophthalmoscope in 182 species of mammals which fall under 103 genera of 47 families, comprising nine out of eleven natural orders, only two being omitted—the Cetacea and Sirenia.

This work must be seen and studied in order to appreciate its good merits; the reviewer, can, therefore, simply indicate some of the salient features.

Part II. is divided into eleven chapters, viz.: The Color of the Fundus Oculi and the Tapetum Lucidum; Vascularization of the Retina; Reversions of Type and Vestigial Relics; Shape and Color of the Optic Axes; Shape of the Pupil; Divergence of the Optic Axes; Refraction; Binocular Vision; Physiological Considerations; Influence of Domestication; The Ophthalmoscopic Appearance of the Fundus Oculi as Bearing on Classification.

The following facts are of general ophthalmological interest. As regards the color of the fundus oculi, the author has classified the animals examined under three heads. The red type includes every shade of red, chocolate, brown and gray. The yellow type includes all shades of yellow and orange. To the green and yellow type belong all the carnivores with the exception of those mentioned by the author. The red end of the spectrum is the most common; next the orange and yellow, and then the green, the colors being rare in proportion to their refrangibility.

The shape of the disk in the mammalia is mostly circular; exceptions occur in the carnivore Cynictis, which has a horizontally oval disk, while in wolves, jackals and foxes it is lozenge or kidney-shaped. The disk is horizontally oval in most of the Artiodactyls and in all the Equidæ, but it is found circular in the goat, llama, camel, tapir, and rhinoceros.

In the carnivora and flying squirrels the disk lies either on a level with the retina, or is sunk below it, forming a kind of cup. An appearance presenting a striking resemblance to the glaucomatous cup occurs as a normal condition in all the felidæ and in a considerable number of other carnivora; it is also met with in the flying squirrels and some of the other rodents.

The color of the disk is rosy pink or red in man and all the Simiæ; in the Galagos and Loridæ it is black or green. In the lemurs and bats, rodents, edentates, marsupials and echidna it is chalky white. The greatest diversity of color prevails in the carnivora, *i.e.*, gray, brown, and various shades of buff and white. The shape of the pupil and that of the disk seem to concord to some extent.

Some of the normal conditions observable in certain animals closely resemble those which we find in man as congenital or vestigial relics.

A persistent hyaline artery is found as a normal condition in nearly all the ruminants, and in a large number of rodents. In some of the rodents, more especially in all the agoutæ, a button-shaped vascular pigmented rudimentary pecten protrudes from the disk into the vitreous. In a number of marsupials, vascular protuberances from the disk into the vitreous occur in different forms. A fully developed nictitating membrane, active enough to sweep the whole cornea, exists only in the Ungulata and not even throughout this order. The papillary coloboma is normally met with in a large number of animals. In galagos and lorides a spreading of pigment occurs circumferentially in the retina which greatly resembles retinitis pigmentosa. In this connection the author emphasizes a fact which is of pathological interest, *i.e.*, that if these nocturnal animals be exposed for prolonged periods to daylight, the pigment advances concentrically, similar to the manner in which it progresses in man, so that the animals gradually go blind. The higher the order, the nearer the optic axes approach parallel vision. Parallel vision with the power of convergence occurs only in animals possessing a true macula, *i.e.*, man and the Simiæ.

Throughout the mammalia, with a few exceptions, vision is hypermetropic. Myopia is exceedingly rare among animals in a wild state, but it is frequently met with, both with and without astigmatism, among domesticated animals, especially guinea-pigs, rabbits and other rodents kept in confinement in small hutches. The author finds a slight degree of hypermetropia, *i.e.* under 1 D. diopter, to be the rule in the higher mammalia, while higher hypermetropia, *i.e.*, 2 D. to 5 D. was found in the wild species of the rodents, the Edentata and marsupials. Simple emmetropia was rarely met with. From an examination of the vision among a large number of native youths from the Upper and Lower Congo, the Nile Valley and the Niger territory, he found that every one with vision beyond the usual standard of $^6/_6$ or $^6/_5$ was hypermetropic to at least .50 to .75 D. (manifest), an amount closely corresponding with that found in the majority of primates and carnivores.

Astigmatism in a full degree, *i.e.*, between .50 D. and 1 D., occurs sporadically throughout the orders; the Simiæ, a number of the carnivores and rodents being practically free from it. In the domestic animals and throughout the Ungulates, the Cetacea and all the mammals below them, astigmatism occurs almost universally.

Of special interest to the ophthalmologist is the opinion advanced by the author that rays of light do not form an image on the retina as usually taught, but that the image is formed beyond the retina on the brilliant surface of the tapetum or fusca pigment layer of the choroid, and is then reflected back on to the terminals of the bacillary layer. The author believes this arrangement for vision bears a close resemblance to Lippmann's method of obtaining colored negatives. Lippmann, it will be remembered, reproduced by photography the image of the camera obscura in natural colors, the conditions for success being that a sensitive photographic film shall form a continuous homogeneous mass of sufficient thickness and the sensitive layer itself must be transparent and in contact with a reflecting surface, *i.e.*, a layer of mercury.

Monochromatic light, red, for instance, may serve to illustrate the idea. When rays of red light, which have a definite wave-length, fall on the sensitive layer, they pass through it and fall on the surface of mercury in contact with it, and the reflected rays interfere with the incident rays, forming a series of stationary waves of a length corresponding to the red, *i.e.*, places where the chemical action is null. The author constructs a theory of vision based on what he considers a resemblance of the arrangement of vision just described, to Lippmann's method of obtaining colored negatives. This ingenious theory is an elaboration of the view expressed by Helmholtz in his "Physiologische Optik," *i.e.*, that we see by incident and reflected light. Some idea may be formed of the zeal and patience and courage of the author, when it is borne in mind that the drawings are of the backgrounds of eyes of animals found in the menageries and zoological gardens of Europe, therefore, not only timid, but wild ones as well.

The text is a model of conciseness and the work as a whole fills a most conspicuous and authoritative place in a hitherto unexplored field of ophthalmology.

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ORIGINAL ARTICLES.

CARCINOMA LIMITED TO THE APPENDIX VERMIFORMIS; DISCUSSION OF ITS ORIGIN AND ITS RELATION TO APPENDICITIS.

BY RICHARD H. HARTE, M.D.,
AND
ROBERT N. WILLSON, M.D.,
OF PHILADELPHIA.

THE following cases are reported as of interest, not only from a pathological standpoint but because of features that give them a direct bearing upon a disease that has become of late years almost as frequent in its occurrence as any one other pathological condition.

As appendicitis becomes more and more frequent, the interest in its etiology increases, not only with a view to an effective treatment, but equally with regard to prophylaxis; and as each new cause is discovered some new field, pathological or therapeutical, opens, and the subject must be gone over anew.

By no means the least interesting of the causes of appendicitis is a primary malignant condition of the mucous membrane and its extension to the different coats of the appendix. The total number of cases in which the appendix has appeared to be primarily involved by a carcinomatous growth is still extremely small—in the neighborhood of thirty—and those in which the growth appears to have been limited to the organ comprise a still smaller number, perhaps in all not amounting to more than eight or ten unimpeachable cases, if so many. Moreover, the pathological interest is an unusual one, not only with regard to its possible bearing upon the etiology of appendicitis, but equally with reference to the causation of the carcinomatous growth. The question arises at once whether the carcinoma or the appendicitis has been the primary condition; and if the former whether, after all, the malignant condition consists of anything more than a perversion and overgrowth of the epithelial tissues, stimulated finally to such an extent as to drain the system of fluids and nutritive substances that are needed in the general economy, and perhaps to form a toxin or toxins that go still further toward undermining the resisting power of the tissues. The tendency at present favors the theory of a parasitic or bacterial origin of most, if not all, malignant growths. The question arises, then, in the cases that are before us: Is it necessary that carcinoma be parasitic in its origin, in order to explain either the primary focus or the metastasis? The cases under immediate discussion were ones in which, as far as could be ascertained *intra vitam*, no malignant involvement had occurred outside of the appendix.

The clinical history will be given before we proceed with the discussion of the subject.

The first case was seen by Dr. Willson in private work, and then in consultation with Dr. Harte, who operated at a later date. The clinical notes were as follows:

Case I.—September 3, 1900. Miss——, unmarried, aged twenty-four years. Family history absolutely negative. Mother died of pneumonia; father alive and well; brothers and sisters all healthy. No history of malignant growth on either side of family. Patient has had most of the diseases of childhood, among them measles, whooping-cough, diphtheria, and pneumonia(?). Menses began at the fifteenth year; have always been regular as to time, but with considerable dull pain over the small of the back and in the pelvis. This usually extends over a week's time, of which two days are usually spent in bed. Has never had leucorrhea. Was well and strong until her sixteenth year, when she went through what was probably a chlorotic stage of several months' duration. From that time she was well until her nineteenth year, when, after a bicycle ride, she noticed a pain in the right iliac region, at first sharp, then becoming dull and heavy and continuous. One week later she mentioned the presence of this pain for the first time, and was placed in bed. Diagnosis of appendicitis by attending physician, and confirmed by a surgeon in consultation. Operation discussed, but set aside. Patient was in bed for over four weeks on this occasion, and then rose free from pain. During this attack there was neither diarrhea nor constipation, the bowels remaining practically normal. At no time was there blood in the stools. From this time for over three years the patient appeared well and was free from all symptoms. The bowel movements were regular and normal.

One year ago, and during a period extending over the whole winter, the patient had attacks of pain similar to those of three years previous, but of less severity. Again, and on this occasion without treatment, the symptoms disappeared, and until last summer (four years and eight months from the date of the first attack) she appeared strong and unusually well.

At this time, and after a hard sight-seeing tour on the Continent, a severe, debilitating diarrhea set in, and blood and mucus were noted in the passages. From then until the present date she has experienced pain in the appendicular region, extending less acutely over the entire abdomen, but centering over the appendix. Pain extends also upward and posteriorly over the right lumbar region. This lumbar pain she had noticed markedly in both of her previous attacks, as she now recalls.

One month ago her symptoms all began to increase gradually in intensity, and the patient has at length been forced to yield through alarm at her condition. She describes her pain as one of a spontaneous nature, varying in character, sometimes sharp, sometimes dull, but continuous in duration, and centering constantly over the region of the cecum. Again there is present the dull ache over the right lumbar region posteriorly, whether the patient is in motion or at rest. The appetite is irregular, and there is a slight diarrhea. Temperature normal, pulse 78.

The blood examination showed: Hemoglobin, 100 per cent.; red corpuscles, 5,120,000; white corpuscles, 6,000. No malarial plasmodia present; no poikilocytosis; no nucleated red corpuscles.

Urinalysis: Acid, 1020; pale amber color, transparent; sediment, scanty, white, flocculent; no albumin, no sugar, no peptone (Bruecke's), no albumose; microscopically, no casts, no renal epithelium, few leucocytes and squamous epithelial cells, no crystals.

On physical examination the patient is found well nourished, rather pale, slightly flushed over the cheek bones, conjunctivæ and mucous membranes of the mouth and nose normal; no jaundice; skin clear and healthy; cardiac dimensions and sounds normal; lungs absolutely negative; pulse regular (78), full, soft, and compressible.

Abdomen: Distinct tenderness on palpation, especially over the umbilicus and over the cecum. On deep pressure in the latter region the pain is markedly increased and of a sharp, acute nature. A thickened colon and cecum seem to be palpable under the fingers. Marked resistance of the muscles of the abdomen on the right side in contrast with the left. The spleen and liver are very tender, but neither enlarged to percussion or palpation. Over the right lumbar region is an area of great tenderness, very sensitive to pressure. Patient has a constant dull ache here, and there is a seemingly distinct pain from that noted in the umbilical and iliac regions. No distinct mass can be felt in the iliac region, but a simulation of a thickened appendix can be constantly palpated, and forms the point most sensitive to pressure.

Further physical examination negative.

The patient was placed in bed, on liquid diet and a pill of calomel, gr. $^1/_{16}$, morphine, gr. $^1/_{16}$, sod. bicarb, gr. j, was given every four hours. Applications of heat and cold both proved so disagreeable to the patient that it was decided to dispense with their use.

September 8th.—During the first few days a marked improvement occurred. Abdomen is less sensitive. Still has severe ache over right lumbar region. Much less sensitive over the cecum. Diarrhea has disappeared. A trace of blood has only once been seen in the bowel movement.

Blood examination showed: Hemoglobin, 100 per cent; red corpuscles, 5,200,000; white corpuscles, 6,500; no poikilocytosis; no nucleated red corpuscles.

September 16th.—Abdominal symptoms seem to be slowly clearing up. Pain and ache have disappeared from the right lumbar region, and almost entirely from the abdomen. Deep pressure still elicits tenderness over the cecum. All of the region along the false ribs on both sides is exquisitely tender to pressure, as if due to a rheumatic process. Bowels moving regularly. No blood in the stools. Sod. salicylate, gr. v, every third hour.

September 24th.—No pain at any point in abdomen except over appendicular region, and there only on deep pressure. Pain along costal border his disappeared. Diet slightly increased. Bowel movements slow and constipated. Small scybalæ passed; no blood. Calomel, gr. $^1/_{24}$; eserin sulphate, gr. $^1/_{120}$.

September 26th.—Patient sat up in bed for first time. Some soreness over appendix, but no active pain at any point. Bowel movements normal; good appetite. All medicines discontinued.

September 28th.—Sat up in chair for short time. No return of pain, but seemingly an increasing soreness on palpation and tenderness over the cecum. This is relieved in the erect posture, and becomes more marked when lying down.

September 30th.—Walked slowly down stairs and without discomfort other than a slight dizziness. No active pain, but a constantly increasing tenderness over the cecum. Bowel movements regular and of normal appearance.

October 1.—Walked a few moments in the fresh air and returned tired, but refreshed. Massage of the abdomen twice daily with ung. ichthyol, et iodi comp. Marked tenderness over the appendicular region. No spontaneous pain at any point.

October 2d.—Palpation of appendix seems to show a markedly sensitive mass that rolls beneath the fingers (compare operative findings). No other point very sensitive, though general tenderness seems to be gradually returning. Old and dull pain over the left lumbar region has again appeared. Temperature and pulse normal.

Blood examination showed: Hemoglobin, 98 per cent.; red corpuscles, 4,900,000; white corpuscles, 8,000; no poikilocytosis; no nucleated red corpuscles.

October 8th.—Throughout the past week the abdominal condition has varied slightly. Pain has gradually increased over the abdomen and right loin. The most sensitive point remains fixed over the cecum. Pain is now constant and sharp, with and without pressure. Blister applied over cecal region.

Urinalysis: Acid, 1017, amber color, transparent; sediment scanty, white, flocculent; no albumin, no sugar, urea, 2.10 per cent., marked phosphatic precipitate, with heat; no casts, no crystals, few leucocytes, few squamous epithelial cells.

October 10th.—Patient seen in consultation with Dr. Harte. Examination elicits findings similar to those already reported, and in addition a possible reference of the lumbar pain to the right kidney, determined only by change in position. Pain over the appendix still persists, though the character of the two seems even more distinctly differentiated, the latter being much the more sharp and stabbing. Diagnosis: Appendicitis and possibly a floating kidney.

October 11th.—Patient again seen in consultation with Dr. Harte. Pain over right lumbar region and abdomen much increased by examination of previous day. Temperature, 99° F.; pulse continually over 80; respiration normal. No indication of a suppurative process.

Blood examination showed: Hemoglobin, 100 per cent; red corpuscles, 4,700,000; white corpuscles, 10,000. Diagnosis confirmed and operation for appendicitis decided upon.

Patient removed to hospital in carriage. During the night had a slight chill and continuous attacks of vomiting, evidently due to nervous apprehension. No change in physical condition.

October 12th.—The patient was easily anesthetized with ether and was operated upon by Dr. Harte about 2 P.M. Appendix removed. Before removal two soft concretions (fecal) were expressed into the bowel.

The subsequent history of the case was without event from a clinical point of view. The wound promptly healed and at the end of two weeks the patient was transferred to her home, sat up in her chair, and from this point on proceeded with on uninterrupted convalescence.

As a matter of routine the appendix was examined and the following notes were made:

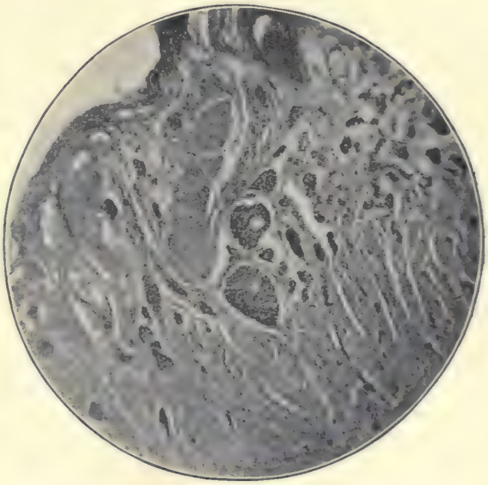
Length from the extreme tip to the intestinal opening, 15 cm. No adhesions at any point. No constriction; no new growth visible; no solid concretions present (two small, soft concretions having, however, been expressed into the bowel at the time of the operation). The appendix lay behind the cecum, and pointed upward and to the right. At no point was there any indication of suppuration or the beginning of adhesion formation. No enlarged glands were palpable. Bowel mesentery, and peritoneum all appeared normal. Except for the great length and a slight twisting upon itself as it lay in the abdomen, the appendix appeared normal to the eye. The lumen was, however, closed for almost the entire length of the organ.

Microscopical sections were made from five different localities. That immediately adjacent to the bowel showed a lumen still patulous. There were evident signs of a high degree of inflammation, a marked proliferation of the glandular elements, and considerable round-cell infiltration. About 1 cm. from the opening into the bowel the lumen had already disappeared, and the tissues were in the first stages of a necrotic process. A few of the glands of Lieberkühn still persisted, and many round cells were to be seen; everywhere, however widespread necrosis.

From this point to within 1 cm. of the tip of the appendix there was no lumen. The tissues became more and more necrotic as the tip was approached, until all traces of the mucosa and submucosa were lost.

About 1 cm. from the tip of the organ, and over a distance of about 0.5 cm., sections were obtained that showed an extensive carcinomatous infiltration of the scirrhous type. Nothing was to be seen in this area macroscopically other than an appearance identical with that on each side of the new growth, where no signs of malignancy were to be found. Starting in the remnants of the glands in the old mucosa, columns and nests of large ovoid and round epithelial cells arranged themselves through all the coats of the appendix, reaching even the serosa, and at certain points extending into it. The area formerly occupied by the lumen was altogether taken up by the necrotic mass, throughout which ran in every direction small columns and nests of the same epithelial cells. The nuclei of the latter stained intensely with hemotoxylin. The blood supply was fairly good in the portions of the appendix that were not necrotic.

Fig. 1.



Case I, showing carcinomatous infiltration of the muscularis, etc.

On both sides of this microscopical area of tumor formation the sections showed absolutely no malignant infiltration. The lumen, however, was completely gone, and the centre of the organ was occupied by necrotic tissue as in the proximal portions. At no point was a foreign growth macroscopically apparent, either within or without the appendix.

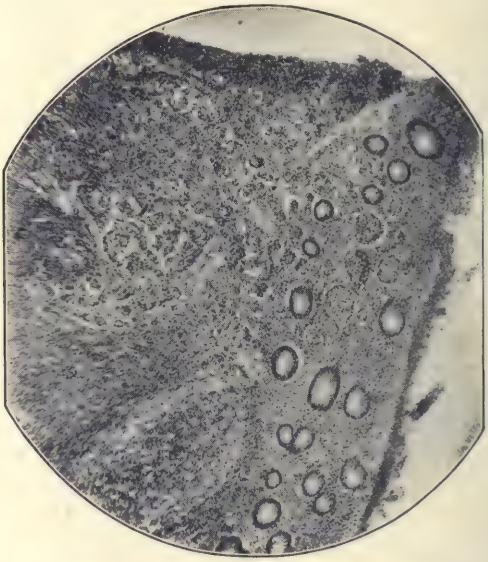
A second case, also reported for the first time, and similar in many respects to the preceding, came to the attention of Dr. Robert G. LeConte, in his service at the Pennsylvania Hospital, and we are indebted to him for permission to publish the clinical history.

Case II.—Frank L., aged twenty-five years, grocer, was born in Russia, and as a child was always well and strong. No history of malignant disease in his family. Father and mother living and well, also several brothers and sisters. Patient had none of the diseases of childhood, and until one year before admission to the hospital had never been ill. No history of trauma of even the slightest nature. Eight months ago experienced pain in the abdomen, often localized in the right iliac region, and described as cramps. Never had either diarrhea or constipation. Never at any time was blood noted in the stools. The attacks of pain were increasingly severe and intermittent until they led the patient to ask hospital advice. During the preceding eight months had been under the care of a physician for the pain already mentioned, but had obtained no relief. On November 11, 1901, his present attack had lasted two days, and was of the same indefinite cramp-like nature, localized mainly in the right iliac region. The physical signs were those of an acute attack of recurrent appendicitis in the third day. A mass could be felt in the right iliac fossa, with the gut overlying it.

Operation, November 15, 1901. Incision at McBurney's point. Appendix was beneath the cecum and bound down in the pelvis, and was found to be ruptured at one side near the tip. It contained a small concretion about the size of a grape-seed. The end was thick and fibrous. Some brown fluid with a fecal odor came to the surface when the peritoneum was opened. The appendix was excised and the stump invaginated, the cavity and space around being packed with iodoform gauze. On November 18th the packing was removed and the patient's condition was good. The outer packing was removed at a later date. A sinus formed and was treated at first in the wards and later at the dispensary.

The following report was made by Drs. Flexner and Longcope upon the appendix removed at the operation: "Diagnosis, primary carcinoma of the appendix; acute suppurative appendicitis. Sections through the wall of the appendix about 1 cm. from the tip show the following condition: All the coats of the appendix are completely necrotic and indistinguishable. Covering the internal surface of the appendix is a mass of necrotic material, fibrin, polymorphonuclear leucocytes, and fine fibrin threads running in all directions. On approaching the peritoneal portion of the appendix the fibrin threads become denser and the leucocytes fewer in number. Epithelioid cells began to appear, and still nearer the peritoneal portion become more and more prominent, assuming an elongated character, until finally the tissue presents the appearance of newly-formed fibrous tissue, infiltrated with a moderate number of polymorphonuclear leucocytes, and clumps of small round cells. In the deeper portion of this tissue is an area containing numerous irregular alveoli of epithelial cells. Some are long and narrow, filled by only two or three rows of cells; others are large, irregular, and packed with many cells. The connective tissue between these cellular masses varies markedly in amount, here and there predominating in the section or sometimes only separating the cell nests by a few fibers. The individual cells are polygonal in shape, with a small rim of palely-staining protoplasm around the nucleus, which is usually oval and vesicular. No nuclear figures are observed. The tip of the appendix is seen to be the point of origin. The surface epithelium is here intact, and except at one point the glands of the mucosa are normal in appearance. The mucosa is here thickened, and scattered through it are small, irregular masses of cells identical with those already described in the other portions of the appendix. The cells at the periphery of these nests in the mucosa are of a high columnar type, with oval vesicular nuclei; but toward the center they become polygonal, with large round or oval palely-staining nuclei. No basement membrane is present. Irregular projections of carcinoma cells extend from these islands of new-growth between the greatly swollen lymphoid follicles and infiltrate with a diffuse growth the deeper portions of the mucosa. The muscular coats are slightly invaded. In other portions of the appendix small areas of new growths are found lying in the submucosa, the muscularis mucosa separating the growth from the mucous membrane in all instances, and thus demonstrating their secondary nature.

FIG. 2.



Case II, showing origin of the growth from the glands of the mucosa.

The patient was examined by one of the writers, through the courtesy of Dr. LeConte, about February 1st, at which time scar was healthy and the patient was wearing with comfort an abdominal belt. On palpation the abdomen was absolutely normal, except for a hard nodular mass to the right and below the old scar. This the surgeons deemed to be a formation of fibrous inflammatory tissue. In March, 1902, he was admitted again to the hospital with symptoms of obstruction of the bowel. Operation was performed and a fibrous band of adhesion was found occluding the bowel above the cecum. The intestine was nearly gangrenous at this point. Death occurred on the same day. At the time of operation there were no discoverable signs of recurrence of the malignant growth. No autopsy was permitted.

It may be well at this point to review the literature upon the subject, and where possible to compare similar cases with the two immediately under discussion. Most striking in the few cases on record has been the absence of any symptoms that would definitely point to the condition actually present. It has already been stated that only in a very small number of all the reported cases of appendicular carcinoma has the process been limited strictly to the organ; but in the few that have been similar in this respect there have invariably been present indefinite symptoms only, and such as belong to an appendicitis of the usual type.

We can find, after a careful search of the literature, only sixteen other cases of carcinoma probably limited to the appendix, and, as previously mentioned, even in some of these it may well be questioned whether the growth was actually limited to or even primary in the organ. Of these A. O. J. Kelly[1] reports two, E. Hurdon[2] one, Letulle and Weinberg[3] two, Rolleston[4] one, Mosse and Daunic[5] one, Wright[6] one, Leichtenstern[7] three, Nothnagel[8] one, Maydl[9] one, and Goffe[10] one. To several of these Kelly has already called attention in his discussion of the tumors of the appendix. In Wright's case there was extensive suppuration in addition to adhesions, and a perforation near the juncture with the bowel. In a third case reported by Kelly, and not included in this list, there was the same picture of suppuration and adhesions, with a miliary studding of the bowel and peritoneum by the growth—probably secondary to disease elsewhere in the body. But in all the cases that we have submitted the symptoms were those of an ordinary relapsing appendicitis, and in none was the actual condition suspected. A few resembled the cases reported in this paper in the complete absence of a tumor evident to the naked eye. In several instances a small tumor was present that was usually mistaken for a concretion within the lumen of the appendix until the latter was laid open.

A number of other cases will be referred to in the bibliography at the end of this article in which the appendix was involved, and perhaps primarily, but in which also the possibility existed of a different location for the original focus of the disease, and in which certainly the process was not limited to the appendix at the time of operation. Cases in which there has been present also an involvement of the uterine appendages, or of the intestines, or of the peritoneum, can hardly be looked upon as even probably originating in the appendix itself, and cannot, therefore, be considered as among the conditions to be included as primary carcinomata limited to the organ.

As a matter of record and comparison an abstract of the cases reported by Goffe, Kelly, Hurdon, Letulle and Weinberg, and Rolleston will be of interest. That noted by Goffe bore a striking resemblance to the two cases primarily emphasized in this paper.

A young Jewess, aged fifteen years, unusually well developed and well nourished. For more than a year has had increasing pain in the appendicular region, caused by any ordinary exertion. Diagnosis, chronic appendicitis, and operation advised, although no tumor was palpable. The possibility of involvement of the uterine appendages was reserved. Operation, December 4, 1900. The appendix was found to be unusually long, thickened, and tortuous. At the extreme tip could be seen through the peritoneum a round white body the size of a large narrowfat pea; this felt to the finger like a calculus. On section it appeared macroscopically like a fibroid tumor, and evidently had developed in the tissue between the mucous membrane and the peritoneum The pathological report stated: "Acute appendicitis throughout the organ, no evidence of chronic inflammation discoverable.' A small spherical nodule, 5 mm. in diameter, was found at the extreme tip, which upon microscopical examination proved to be carcinoma of quite a typical character. The growth appeared to intrude wholly upon the lumen of the appendix, the muscular coat remaining unaffected except," etc. The patient's grandmother died of carcinoma of the uterus, her sister of carcinoma of the breast; there was no other malignant history in the family. The patient convalesced promptly and has been entirely relieved of her former symptoms.

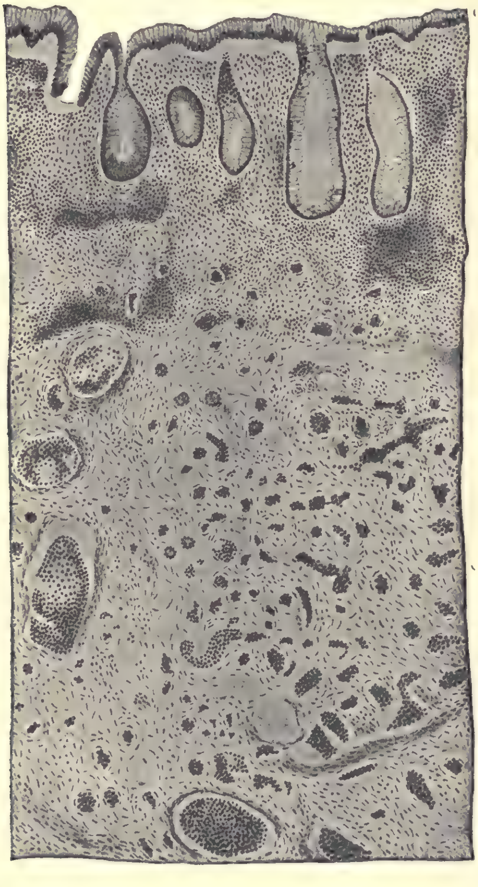
Kelly's cases showed the following features:

Case I.—Clinical history lost. Appendix removed by operation February 19, 1898. Length of appendix, 11 cm.; exterior diameter at proximal end, 8 mm., this being maintained for about 3 cm. Then it increases to 1.2 cm. and continues so throughout the remainder of its length. The organ is irregularly distorted, and the wall of its proximal two-thirds is of a greenish hue, soft and necrotic. The lumen measures 4 mm. at the proximal end, and gradually decreases to 1 mm. at the tip; the mucous membrane much congested and ulcerated toward the proximal extremity. Toward the tip the inflammatory phenomena are much less marked. The lumen contains a small amount of mucopurulent material. Cultures showed a pure growth of colon bacilli. The microscopical examination showed a high grade of ulcerative appendicitis, and at the distal portion an area of tumor formation about 6 mm. in diameter, involving only the mucosa and submucosa. Slight persistence of the glands of Lieberkühn. Diagnosis, carcinoma. Cells polyhedral, some large and ovoid. Solid masses of cells in alveoli.

Case II.—Man, aged nineteen years; family history negative; previously well. Eight days before admission seized with cramp-like abdominal pain. On the third day vomited a small quantity of frothy mucus, and pain became localized to the right iliac fossa. Pain relieved by flexing right thigh. Some abdominal distention and tenderness in right iliac fossa, marked rigidity of right rectus muscle, an area of dulness on percussion, on palpation a mass about three inches in diameter in the right iliac fossa. Temperature, 102° F.; on next day, 103.2° F. At the operation on the next day the head of the colon and the appendix were found surrounded with pus, which was evacuated and the appendix removed. Recovery.

Pathological Report: Appendix, 5 cm. in length, and about 1 cm. thickness throughout its entire extent, much congested and inflamed and covered with fibrino pus, much distorted; microscopically, lesions of ulcerative appendicitis, and toward the base of the appendix a small growth, "which in the cross section occupies hardly three-fourths of the microscopical field of an AA Zeiss objective and a No. 2 eye-piece." Situated entirely within the submucosa, the mucous membrane being nearly intact, are solid masses or nests of cells, some relatively large. The cells are epithelial in type, of moderate size, and their nuclei are vesicular and stain well. In some sections there is a slight infiltration of the muscularis.

FIG. 3.



Both of the foregoing cases seem to be genuine examples of a limitation of the new-growth to the walls of the appendix, and through the kindness of Dr. Kelly we have had the opportunity of comparing his sections with those from our own cases. The purulent effusion in his second case seems to indicate at least an extension of the inflammatory processes to adjacent and surrounding structures.

Much more typical even of the ordinary appendicitis is the description of the following case reported by H. D. Rolleston.[4]

Woman, aged twenty-six years, in her fourth attack of appendicitis, the first having occurred in January, 1899, and the last on March 26, 1900. The appendix was removed on the following day (March 27th). No account is given of the clinical symptoms nor of the physical signs; simply the statement that they were those of an outspoken, relapsing appendicitis.

The appendix showed slight peritoneal adhesions connecting the apex of the organ with the posterior surface of the uterus. No enlarged glands were present, nor was anything that suggested a secondary involvement seen at the time of operation. When the appendix was cut open a globular mass a little larger than a marble was found near the apex, arising from the mucous membrane, somewhat caseous in appearance and suggesting tubercular disease. Patient recovered from the operation, but during the middle of April had erratic temperature, with some pain in the left side of the abdomen. This subsided, and she went to a convalescent home in May. News was had recently (June) that the patient was losing flesh, and possibly secondary growths were developing in the abdomen.

Examination of the appendix unexpectedly showed the growth to be a spheroidal-celled carcinoma, limited in portions to the mucous membrane, and elsewhere extending to the muscularis and almost to the peritoneum. There was no extraperitoneal involvement.

This case resembled those reported by Kelly, and showed in a still more marked manner the limitation of the growth and its point of origin. The tumor was evident macroscopically, but only after the laying open of the organ. The clinical picture was not given in detail, but was undoubtedly one that suggested nothing more than a chronic catarrhal condition of the appendix.

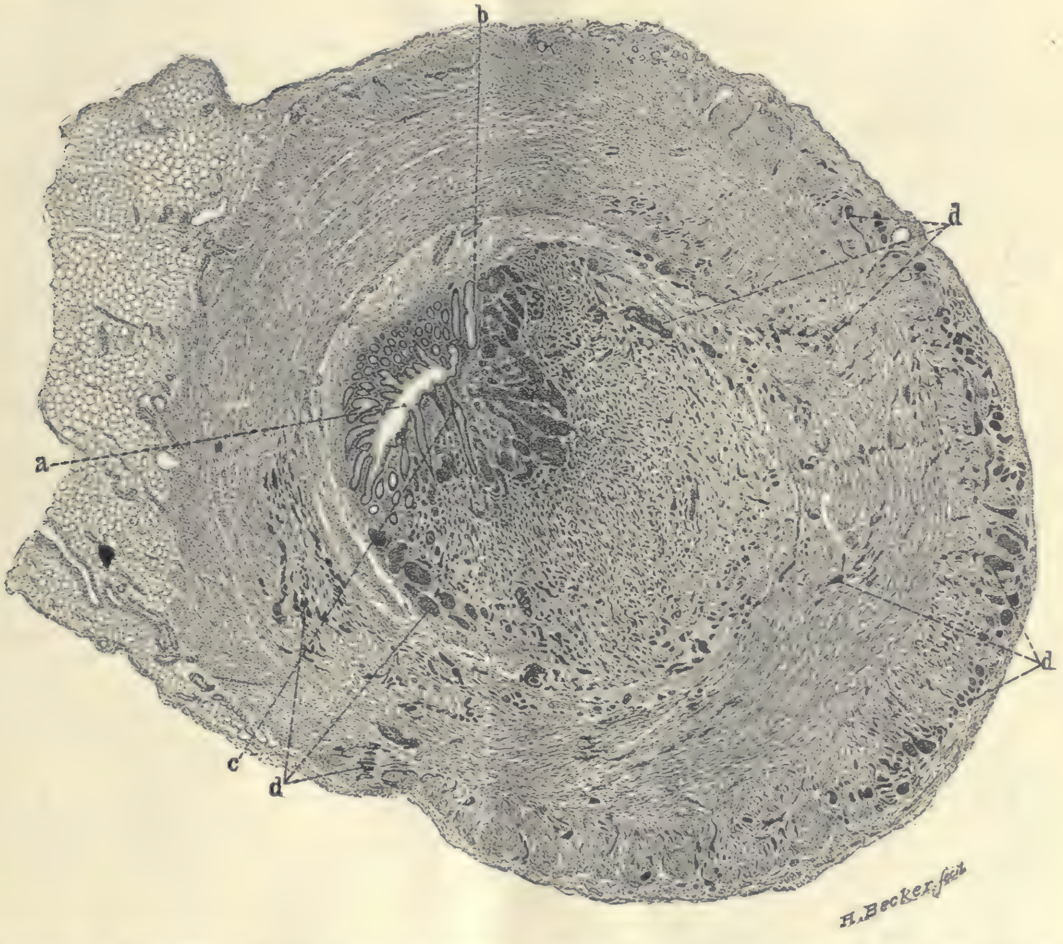
E. Hurdon's[2] case, seen in the service of Dr. Howard A. Kelly, goes a step further in the similarity of the clinical pictures, and again presents a growth that was discovered only after removal from the body.

Woman, aged twenty-four years; married nine years; II-para. One brother died of carcinoma of the leg. Patient always well until birth of first child; then at varying intervals experienced pain in the back and abdomen. This was a dragging nature. Last spring she had a fall, and the pain, which had been limited to the pelvis, now became more marked, and was situated higher up in the right iliac fossa. Right kidney palpable and slightly movable. Uterus in acute retroflexion; its mobility restricted. Further examination negative.

At the operation (February 21, 1899) Dr. Kelly released the pelvic adhesions, suspended the uterus, and removed the appendix. The uterus and tubes were bound down, especially on the right side. No cause discoverable for pelvic peritonitis until the appendix was found hanging into the pelvis, enveloped in dense vascular adhesions. A shortened meso-appendix caused the outer third to redouble on the inner portion, and at the point of flexion there appeared to be a foreign body in the canal. The appendix was amputated close to the cecum. Uneventful recovery.

In December, 1899, the patient had gained twenty-three pounds, and her general health was of flexion there appeared to be a foreign body in right lumbar region, evidently due to the movable condition of the kidney. In May, 1901, more than two years after the operation, Dr. Hurdon writes: "The patient is enjoying good health and shows no evidence of recurrence."

Fig. 4.



The appendix was 10 cm. in length. About the juncture of the middle and outer thirds it was flexed within a broad band of adhesions. Proximal end normal. The portion beyond the flexion was distended, and contained a soft concretion about the size of a date-stone. Also a small tumor, in the form of an oval swelling, impinged upon the canal, and appeared to the naked eye about 1 cm. long and 5 mm. broad. The cut surface showed a whitish appearance. Under the microscope the growth was seen to be the ordinary type of glandular carcinoma that is so customary in the mucous membrane of the bowel.

This case bears a great resemblance to the first one that has caused the writing of this article. Not only the clinical history, but the special lumbar symptoms referred to a floating kidney, and the flexion of the appendix showed striking similarities. The two cases differ absolutely in the presence and absence of adhesions and surrounding inflammation, carcinomatous or otherwise. Both were in women in their twenty-fifth year.

Letulle and Weinberg[3] report twelve cases of obliterative appendicitis from their histological aspect, among which they unexpectedly found two cases of carcinoma developing at the level of the cicatricial obliteration of the tube. In neither case did a malignant growth enter into the discussion as worthy of consideration prior to the microscopical examination. The foregoing instances will suffice to show that cases do occur in everyday practice, and in all classes of life, which, while simulating appendicitis in their clinical features, may all the time constitute the manifestations of a malignant growth that is gradually making headway toward a fatal involvement. A. O. J. Kelly[1] has called attention to the fact that out of 20,480 autopsies performed in the Allgemeinen Krankenhaus in Vienna for the twelve years from

1870 to 1881, there were 1,460 cases of carcinoma, of which 100 affected the intestinal tract, and of these only one involved the vermiform appendix alone (Maydl[9]). Also to the statistics of Nothnagel,[8] for the same institute, from 1882 to 1893. During this time 20,358 autopsies were made and 2,124 cases of carcinoma noted, of which 243 were of the intestinal tract. Only one affected the vermiform appendix.

Whipham[10] reports a case of extensive involvement of the intestine and peritoneum, which he believes to have originated primarily in the appendix. He notes an ovarian involvement, which he speaks of as "probably secondary," in spite of the fact that the reverse would be the natural order of probability.

Mosse and Daunic[5] report a case limited to the appendix and devoid of all appendiceal symptoms. The patient died of cardiac disease, and, as has so often happened, the appendicular growth was discovered only because of the routine examination.

Rolleston[4] refers to a growth of the appendix reported by Gilford[11] as having been probably a mass of inflammatory tissue and not malignant. From the original description we are inclined to think, with Rolleston, that the case was neither one of carcinoma nor sarcoma, as claimed.

J. H. Wright,[6] however, has published an account of a case seen by him that undoubtedly comes under the heading of appendicular carcinoma. The clinical history was one of purulent peritonitis of obscure origin. The autopsy failed to reveal any definite starting point for the purulent effusion.

The appendix showed some adhesions, but there was no evidence of perforation. As a matter of habit, the appendix was sectioned and a "small primary carcinoma" found in the head of the appendix. "At the junction of the tumor with the wall of the gut" a perforation was then found "which was undoubtedly the starting-point for the peritonitis." The muscularis was infiltrated with the cancer cells, and the tumor followed out the characteristics of an adenocarcinoma.

Lafforgue[12] collected nine cases of appendicular carcinoma, some of them of doubtful accuracy, and Leichtenstern[7] three cases.

Finally, A. Beger[13] has reported a case from Thiersch's clinic which is of interest in that it resembles our first case of our series in its slow development, though when the appendix was removed the tumor had attained to a large size and was no longer limited to the appendix.

Man, aged forty-seven years. A mass was evident in the right iliac region for three and one-half years. Severe pain. On incision one liter of odorless pus was evacuated. The opening would not close, a fistula formed, with exuberant granulations around it. No digestive symptoms other than constipation were present.

The physical examination showed a tumor the size of a fist over the appendix; the surface of the abdominal wall was lacerated. A small portion of the tumor was excised and examined. Diagnosis, adenocarcinoma of the intestine. The appendix was 6 cm. long, finger thick, the peripheral end much enlarged. The serosa was nowhere perforated by the growth. The wall showed inflammatory hyperplasia, the central portions forming an abscess wall and surrounding the purulent collection in the new-growth. The patient died. At autopsy there were found to be present also a general peritonitis and a carcinomatous infiltration of the glands.

If we would summarize, we obtain the following facts and figures. By extending the meaning of the term "limited to the appendix" to include all cases in which there is distinct evidence of tumor formation only in the organ itself, *i.e.,* including cases in which there may be vascular adhesions, suppurative peritonitis, hyperplastic glands, etc., but not yet a true development of malignancy elsewhere than in the appendix, we are enabled to classify under the above heading as follows: Nothnagel,[8] 1; Wright,[6] 1; Maydl,[9] 1; Letulle and Weinberg,[3] 2; Leichtenstern,[7] 3; Mosse and Daunic,[5] 1; Kelly,[1] 2; Hurdon,[2] 1; Rolleston,[4] 1; Ziemann,[14] 1; Goffe,[10] 1, and the present cases 2; in all 17 cases. Of these several might easily be called into question, reducing the number still further if a rigid line were drawn; for in exceptional instances only is mention made of a thorough examination of the abdominal contents for other foci of malignancy. As only a small number have as yet given an opportunity for study on the autospy-table a statement as to the probable limitation is all that can be made. Even if we include cases in which the appendix has been *chiefly* concerned, and in certain of these by an admittedly secondary involvement, we can find only in the neighborhood of 30 cases all told. Kelly has called attention to those of Merling,[15] Rokitansky,[16] (4), Prus,[17] Beger,[13] Draper,[18] Stimson,[19] Mosse and Daunic,[5] Wright,[2] and Cullen.[20] Also to a questionable case of Monks.[21] We have already mentioned Lafforgue's nine cases of which several are included with no propriety in such a classification.

Kelly[22] has himself made a most careful study of appendicitis in general; and in sectioning 706 appendices in cases operated upon in the German Hospital, Philadelphia, has met with only three cases of carcinoma of the appendix, two of which are mentioned in this list.

These figures indicate that the condition is decidedly rare, and yet we are inclined to attribute to it much more clinical importance than would at first seem to be warranted. In the first place, appendicitis has been considered an operative condition for too short a time to afford opportunity for a thorough study of the relation of malignancy to its etiology, even had advantage been taken of every occasion for microscopical examination, which is far from having been the case. Only during the past two or three years has there been any careful histological study of appendices after their removal on the operating-table; and even now it may almost be said that nine appendices out of ten are destroyed without microscopical study. The fact is a pregnant one that out of the thirty and odd cases fully two-thirds of the number have been discovered since 1890; and of the 17 cases that we admit into the number of those probably limited to the appendix, all except one have been noted since 1895, and 10 since 1898. *Of the latter* 10, 6 *have occurred within the last eighteen months.* All of these facts point to one conclusion. As the custom grows of examining microscopically every bit of pathological tissue that leaves the operating-table, we find much more frequently conditions that have been considered rare. Five years ago an appendicitis was either acute or chronic; then it became catarrhal, ulcerative and obliterative. Now room has to be made for carcinomatous appendicitis, or perhaps more accurately, "inflammatory carcinoma" of the appendix. This leads us directly to a discussion of the origin of the growth in the appendix, and from that point still further to the clinical aspects of the condition.

First of all, what may be the *cause* of a primary carcinoma of the appendix? The many theories applied to the causation of carcinoma in general of course come readily into view; and as each advances it must be promptly set aside until we arrive at last at a point between two possibilities, neither of which can as yet be definitely established. Taking for example our own case as a fair one for consideration, we must pass over at once the congenital theory of Cohnheim as impossible. Trauma is not to be considered in the case. Heredity can have no place. The age itself was against malignancy; and certainly there was no true tumor dyscrasia in a case that had required five years or more for the development of a microscopical tumor, although the interior of the entire appendix was necrotic. So that we come naturally to the only two remaining theories; the one of a parasitic infection, and the other of an inflammatory overgrowth of the epithelial structures, accompanied by a perverted metabolism that evenually must result in both an extension of the growth and a poisoning of the system. To assume the former as the correct theory we must admit that the parasites were present in the appendix, or at least in the system, for not less than five years, and that at the end of or during that time they were only able to form a growth so minute that it still required the microscope for its discovery. This theory at the same time implies the presence of animal organisms that can survive during five years of combat with the fluids of the body, and yet are at a standstill as regards their own multiplication, a thing that is hard to conceive in the light of our present knowledge of the manners and customs of pathogenic bacteria and protozoa. We make this statement in the full knowledge of the fact that during the past few months a new parasite has been offered to the medical profession as an explanation of the origin of malignant disease. Much more logical seems the sequence from a primary inflammation (especially in our own case) and a carcinoma secondary to or developing out of it, than a primary carcinoma and a secondary inflammation.* Moreover, the improvement that constantly follows operations in cases of malignant disease, even though temporary, supports this theory, while at the same time rendering less plausible one of a parasitic origin. The removal of the focus of active inflammation will retard and perhaps cause to cease temporarily, or perhaps permanently, the exaggerated proliferation of epithelial structures. Whereas the same active procedure, except in the way of removing unhealthy tissue, would only offer new and perhaps, up to that time, uninvolved surfaces to an infectious process, by virtue of the progress of the knife and the shock involved in all major operations.

If it once be allowed that a simple inflammation may have been present for years, whether catarrhal or of any other type, it is easy to imagine its semiquiescence during that time, until at last during an unusual disturbance of the bodily or local nutrition it breaks down the resisting power of the tissues, as so frequently happens in other portions of the body. This dormancy we cannot so easily assume for carcinoma, once it is developed in the body. We must consider, however, the possibility of a chronic inflammatory condition, long present, that has so depleted the resisting power of the appendicular structures that the latter finally become susceptible to a passing infection. It will no doubt be claimed that in such a condition the objection that the carcinoma parasite, in order to have had any influence, must have remained idle for many a day, becomes groundless; and that if there is indeed such a thing as a causal parasite, now is the time when it will most likely exert its influence should it happen to be present at this particular period. Such an argument is impossible of definite answer, because it states only a possibility. The assertion, however, carries no weight of probability with it; and at least to our minds the theory of an inflammatory origin offers so much more simple and likely an explanation that it seems unnecessary to go out of our way to search for a causal organism. After all is said, the most telling argument against the parasitic theory is the failure of such growths to show a predilection for metastasis through the circulation, rather than by direct extension. Metastases do occur in this way, but by no means so often, and we do not need to go to greater trouble than to examine the blood repeatedly in such a case in order to find there cells that have left the mother focus, which by their very nature must spread the unwholesome influence, whatever it be, to the tissues that form their lodging place. Moreover, Dock's studies

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*After this article was in type the writers saw together a case that bears directly upon this point, in a woman who had suffered for years from ovarian colic, with a vague history of an attack of appendicitis twelve years before. At operation a cystic ovary was removed and a thick short appendix that had evidently been the seat of repeated attacks of inflammation. In the tip of the latter a small tumor was observed, encroaching upon the lumen, which on microscopical examination proved to consist of inflammatory connective tissue. No malignant change could be detected. The mucous membrane had disappeared from almost the entire lumen of the appendix.

(*Amer. Jour. Med. Sc.*, June, 1897) have recently shown that many of the cells previously considered as "carcinoma cells" can be caused to appear on the pleura and other structures by exciting simple inflammatory processes; and that neither these nor cells from a carcinomatous mass can be distinguished from ordinary epithelial structures except when found in mass and in typical arrangement with others of their kind. Bacteria or sporozoa or fungi may be carried too, and no doubt often are, in the circulation; but that there is a specific organism in and behind the new process seems highly improbable, and still less likely of demonstration. Ribbert (*Deutsche med. Woch.*, Nov. 21, 1901) takes the ground that parasites play no part in the development of a carcinoma after the primary irritation and inflammation have been set up in the connective tissue. By means of this inflammation the organic relation between the epithelium and its basal structures is severed, and the epithelium thus becomes, apart from its need for nourishment, independent of the body. This stimulates at once its natural and independent tendency to proliferate. He then adds that possibly there may be a specific micro-organism causative of the primary connective-tissue inflammation, but that its influence does not extend to the proliferation itself. This is as much as to admit (and we hold this as the most likely solution of the question) that any micro-organism may start an inflammatory reaction under certain circumstances, which, under favorable conditions, may develop into carcinoma. There are perhaps few, if any, malignant growths that do not yield cultures of the ordinary pyogenic organisms. Probably these find a favorable nidus at a time when the tissues, owing to one cause and another, are non-resistant and simply take advantage of their opportunity. Von Marschalko* holds that the so-called plasma cells (which are probably nothing more or less than fibroblasts) in certain conditions undergo hyalin change and present the forms that have been named cancer parasites by many writers. This again coincides with our view; as the plasma cells have been shown to be most probably derivations from the lymphoid cells, and the latter, as is well known, are found massed around old and chronic inflammatory foci, sometimes to the exclusion of the polymorphonuclear variety. The boundary between hyperplasia and malignancy is at best a very narrow one, and when the epithelial tissue is ready at hand, as in the mucosa of the appendix vermiformis, it needs only the torch to light up a conflagration such as we may here picture. Grant also a necrosis already under way in the surrounding tissues, and a consequent refusal to supply assistance in the form of nourishment for the diseased structures, and there is nothing left to hinder the epithelial bands from forcing their way in every direction into the surrounding unprotected territory. Proliferation is as natural with epithelium as mischief-making with the pyogenic organisms, and, only allowing that the surrounding tissues are devoid of their native resistant energy, the irritated epithelium may be expected to advance in its overgrowth as promptly as the barriers are let down. Apart from the local condition the first patient considered in this paper was in superb physical trim. Even at the time of the operation her muscular development was one to be envied, the blood picture unusually good, and not a bodily function disarranged. Evidently in such a case even a malignant growth must choose a slower gait than is its wont. It is well known, moreover, that intestinal carcinoma pursues a slower and, if the expression may be used, a more benign course than that of other portions of the body. But that it can lie dormant for the time required in this instance, and be discovered at last only by accident, is more than one should be asked to believe. Nor is it conceivable that a specific organism, at work for even a short time, not to mention five years, could fail to transmit others of its species, as well as its toxin, to other portions of the body. And yet not a single gland in the abdominal cavity could be palpated. Certainly these cases would seem clinically and pathologically to point away from a parasitic origin, and toward a purely inflammatory and hyperplastic beginning of the growth. Had the patient been older, and had the growth been more extensive, and to a degree commensurate with a portion of the time during which inflammatory symptoms were present, the parasitic theory could find ground for resting-place. But with only ¼ cm. of progress in five years, no peritonitis, no enlargement of the glands, no adhesions, a perfect blood picture, and no involvement even of the structures continuous with a chronically-inflamed appendix, the foundation for a parasitic explanation becomes almost as microscopical as the tumor itself.

Our belief is and must be that the original focus was a catarrhal inflammation, probably due either to fecal or other obstruction, or to extension from the bowel, and that the carcinomatous change took place subsequent to and entirely as the outgrowth of the former process.

In concluding our paper it will be interesting to briefly discuss the diagnosis, treatment, and prognosis of the condition.

Can the condition be diagnosed in its early stages? We believe not, unless the ground be taken that every appendicitis presents the danger of malignant disease, and an incision be made for the purpose of diagnosis. Even then, in these cases as well as in those of Goffe, Kelly, and at least one or two others, the only means of diagnosis lay in the removal and microscopical examination of the appendix.

The clinical symptoms were those purely and simply of recurring appendicitis. The patient's age was against carcinoma (it will be noted that in a considerable number of the cases quoted the age has been that of young puberty) and the condition, except for the pain and tenderness, was excellent. The stools were not characteristic.

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* Arch. f. Derm. u. Syph., 1900, Bd. lxiv, Heft. 2 and 3.

The urinary examination throughout the entire period was absolutely negative. The blood in the first case was hyper-healthy, if a high percentage of hemoglobin and a high count of red and white corpuscles can be looked upon as a criterion. Only on the last day was there a suspicion of a leucocytosis, though, unfortunately, no differential count is recorded. The absence of an absolute leucocytosis is hard to explain, though it may have been dependent upon a partial lack of power to assimilate the food. Thus, in spite of the presence of necrosis and a malignant disease there was no indication in the blood of an inflammatory process in the system. Equally interesting was the absence of nucleated red corpuscles and poikilocytosis. The mass that seemed to be palpable, clinically, was altogether wanting when the abdomen was opened, and rendered only more astonishing the final discovery under the microscope. The glands were at no point enlarged.

The symptoms, therefore, as well as the physical signs, all joined in pointing to a recurring appendicitis, and had carcinoma been considered, as was not the case, it would have promptly been ruled out as impossible under such conditions of nutrition and development.

Later on in such a case the condition may become plain enough, as in one of the instances quoted above; but the diagnosis then comes too late to be of service. "Either early or of no avail" must be the guiding principle in this as in all other forms of carcinoma.

The treatment, in the light of the above facts, rests itself at once upon two alternatives: Either the radical school of surgery gains a point by finding in this an additional reason for immediate operation as soon as appendicitis is diagnosed and as a prophylactic measure, or else the conservative must lean upon the comparative rarity of the condition.

Some will say that if out of 706 cases sectioned for Deaver by one pathologist only three carcinomata were discovered (beside one sarcoma and one endothelioma of the organ, which do not directly concern us in this connection), the number and danger do not justify a wholesale attack upon the appendices of mankind. On the other hand, we ourselves have been able from the literature of the last five years to collect a number of cases, always increasing in the yearly ratio, and as more appendices are examined it bids fair that more will be found.

The question, therefore, is no trifling one. If a carcinoma such as was found in these cases by accident will later involve the bowel and peritoneum, and certainly cost the patient her life, and, again, if by removal at an early date the operation presents only the ordinary danger of an abdominal section and etherization, then the surgeon has thrust upon him a new responsibility. And when the medical man deliberates in regard to the best mode of procedure, he must think twice before finally deciding to let Nature try her hand in the case. Life obtained at a real but minimum risk and an equally real risk of sure death are the two questions involved in a prompt operation and an expectant treatment. This is a point which, if well taken, changes a conservative into a radical on any question, and we will be surprised if many a medical man, as the number of reported cases of appendiceal carcinoma increases to greater proportions, does not leave the ranks of the expectant ones and proceed to prompt and thorough measures.

No ice-bag and no sedative treatment, nor even rest in bed, can either retard or destroy the carcinoma when once present in the appendix. And though cases of simple appendicitis have undoubtedly recovered and lived whole lives without a recurrence, no one, we now know, can tell whether the case is one of simple appendicitis or carcinoma. If the one, it may recover without operation; if the latter, the patient will die unless operated upon. And the only way to ascertain which she will do is to open and remove the growth if there, and the appendix, whether a carcinoma be evident to the eye or not. The duty to the patient ranks in advance of the fear of the result, and if left to the patient's own decision, the facts being fairly presented, the abdomen will be opened. Provided now an operation has been decided upon, and either upon the operating-table or later in the laboratory a malignant condition of the appendix be found, what shall be our course of procedure, even if the abdomen shall have already been closed before the growth is discovered? This question can only be settled with regard to the extent of involvement, the presence of metastases, or the infiltration of surrounding tissues. The abdomen should, at any rate, again be opened, and if the growth be microscopical, or even macroscopically evident, and yet have not, as far as can be ascertained, been transmitted beyond the appendicular walls, we believe the proper procedure to be the removal of the appendix only. Warren,[23] in a similar case (sarcoma of the appendix), extirpated the cecum and a portion of the bowel on each side of the latter. The treatment is radical, and errs, if at all, in rendering the operative procedure more grave and extensive. Here, however, we must consider, in conjunction with the gravity of the surgical measures, the prognosis as it stands without such procedures. If the simple removal of the appendix with a growth which, to the best of our knowledge, involves only its own structures, presents a fair probability that the latter may never recur, then our duty is plain. If, on the other hand, a greater degree of safety is assured by a more extensive operation, a simple appendectomy is not to be considered. As yet we have neither statistics nor experience to help us in our decision, and the writers can only say that in such a case as that reported in this paper the less serious of the two procedures would seem to them to be indicated in the light of their views as to the pathology of the malignancy of the appendix. A new question is at hand immediately the bowel becomes involved or as soon as adhesions, adenitis, and peritonitis make their appearance manifest.

Our own experience as well as that of others whom we have consulted covers absolutely no cases that have been diagnosed as such while still limited to the organ, or which have been observed for a sufficient time subsequent to the operation to warrant an opinion as to the certainty of cure or recurrence. If the growth were as small when removed as in the present instances, it would require considerable time for it to recur in such force as to give decided symptoms, especially as the bowel seems preeminently a favorable site for early operation upon carcinomatous growths. If our argument hold good, however, in regard to the sequence of causation of the tumor, we see no reason why, if removed while still limited to the appendix, the growth should ever recur. Where the growth is microscopical in the appendix, an extension would probably also be microscopical for some time. But it is equally true that the smaller the growth —and therefore the younger—the less likelihood there is of an extension having taken place, if we judge from the general rule followed by carcinomata; and the smaller the area involved the less likely the prompt recurrence if seasonably removed. We find by inquiry many opinions that differ on the point, however, and some distinguished authorities speak of the prognosis as certainly bad. Only time will tell. Of course, with the growth of vascular adhesions, the presence of a peritonitis, of a perforation, or of an extension directly to adjacent or contiguous structures, the prognosis assumes a character that is as certain as it is grave.

Up to the present time the whole subject is a new one, but it promises not only to throw light upon the well-trodden though dim path of carcinoma research, but to revolutionize the treatment and prognosis of appendicitis, provided only that the systematic examination of all diseased appendices causes an increase in the number of similar cases proportionate with that of the past semi-decade. Hurdon's case, as has been noted, is "in good health" in the beginning of the fourth year after operation.

The case first considered in the paper also has had an absolute recovery, as far as can be known at the present time, now eighteen months from the time of her operation. She has gained in weight, is absolutely free from lumbar and abdominal pain, and, except for the remembrance of the many dreary months of suffering, seems only the stronger and more active for all she has endured. The outcome of her case should definitely establish not only the prognosis but the treatment, at least in similar cases, and we shall consider it both a privilege and a duty to publish the result at a later date.

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ANURIA. CLINICAL MEMORANDA IN THE OBSERVATION OF A CASE.[1]

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IF one considers of what tremendous and far-reaching importance the excretory function of the kidneys, or, more properly said, the absence of this excretory function, is to the human organism, the gravity and successful issue of the case about to be reported will be readily appreciated.

It is well known to everybody that the subject of the surgery of the kidneys, in spite of its youth, is at the present date fairly clear in most, if not all, of its details. From the chemical and microscopical examination of the bladder urine, and from other well-known diagnostic aids, as well as the anamnesis, we can frequently make the diagnosis of disturbed kidney function. More recent discoveries, as urethral catheterization, the cystoscope, Harris's segregator, the kryoscope, the phloridzin test, will enable us in a majority of instances to differentiate also between the condition of the two kidneys. When the diagnosis is made, past experience and judgment will also quickly indicate the therapeutic procedure. If however, we wish to utilize this knowledge and experience to the consideration of a case of anuria, I very much fear that from the very nature of the lesion nothing definite will result; in a majority of cases only a guess, and in the easier cases only a good guess.

Cases of total anuria, while not extraordinarily rare, are still of sufficient rarity to merit the publication of all cases. In view of this fact, and in view of what has been said, the publication of this case has been decided upon.

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[1] Read before the Surgical Section of the New York Academy of Medicine, Feb. 10, 1902.

The history of the case is as follows: Mrs. Clara S., a native of Roumania, was admitted to Mount Sinai Hospital on March 5, 1901, about 9 o'clock P.M. Patient has been a resident of the United States for seven months; married one year, and has never given birth to a child. One year ago patient had an attack of "malaria"; she was then perfectly well till six months ago, when she again developed "malaria." History of irregular, almost daily chills and fever. At about this time also she aborted, after a pregnancy of approximately two months. Since that time she has been perfectly well with the exception of more frequent micturition, which, however, she ascribes to her present pregnant state.

Three days ago the patient was suddenly stricken with very severe pain in the left hypochondriac region; on the following morning she had a chill of ten minutes' duration, followed by a rise of temperature to 102° F., and by sweating; in the evening of the same day, a second chill of fifteen minutes' duration, with intense pain in the left hypochondriac and left lumbar regions. Since that time the pains were constant, with occasional exacerbations; vomiting almost incessant; bowels somewhat constipated. Since the beginning of the attack absolutely no urine was voided voluntarily. On being catheterized on the second day about 30 c.c. of a purulent, non-urinous fluid were obtained; a second catheterization on the same day resulted in the withdrawal of about 4 c.c. of a similar fluid.[1]

Status præsens: Patient is markedly pale and anemic, and presents the picture of a person exceedingly ill. The expired air has a decidedly urinous odor, which is detected immediately on approaching the bedside of the patient. On examination it is found that the suprapubic region is tympanitic to percussion, without any physical signs referable to a distended bladder. The uterus is about the size of a large fist, and is in a position of normal anteflexion; to the right of the uterus there is to be palpated by bimanual examination a slightly tender mass about the size of a hen's egg. The left hypochondriac and left lumbar regions are occupied by a large globular mass, about the size of a child's head, which is so painful and tender as to render an exact palpation and its definition impossible. Some pain and tenderness also in the right kidney region, but not so marked as on the opposite side; this organ not palpable. Signs of dry pleurisy on both sides; aspiration of right thoracic cavity negative. Temperature 101.8° F.; pulse 120; respiration 40.

On being catheterized there were obtained about 40 c.c. of a milky fluid, which was alkaline in reaction, contained some albumin, a large amount of pus and some mucus; chemically just the barest indication of a trace of urea was found.

After a careful consideration of the past history and the presenting symptoms, the following diagnosis appeared to me to be justified: Acute suppression of urine, caused by a left-sided (most probably calculous) pyelonephritis, and reflex anuria of right kidney. Therapeutically I proposed a nephrotomy on the left side and a splitting of the capsule, and possibly also of the parenchyma of the right kidney, in order to relieve the congestion.

Operation at 1 A.M., March 6th. On account of the bad general condition of the patient, I hoped to be able to finish both operations with Schleich's infiltration anesthesia, but during the latter half I was compelled to administer chloroform. Through an incision about four inches long and parallel to the last rib, the left kidney was exposed. This was found to be very much enlarged and its pelvis tensely dilated. An incision through the parenchyma gave escape to approximately 1,000 c.c. of a purulent, straw-colored, urinous fluid; a finger introduced into the pelvis of the kidney could palpate no stone, nor did a metallic instrument elicit stone impact. The kidney was then drained by two large-sized drainage tubes, surrounded by iodoform gauze. The patient was then turned on the opposite side with the intention of exposing the right kidney and splitting its capsule, in order to relieve its presumed congestion so as to reestablish its excretory function. Contrary to expectations this part of the operation was exceedingly difficult, the kidney being apparently embedded in a densely adherent, very firm, cicatricial perirenal fat. Fluctuation, however, was apparent at a small point, and, pus being found on aspiration, the kidney was incised and drained, several drams of a thick, sanguinolent pus being evacuated. Duration of both operations one hour; duration of chloroform anesthesia, thirty-five minutes.

Patient was returned to bed in a fair condition.

March 6th. Patient passed a fairly quiet night. Toward morning bleeding from the uterus was noted, with signs of an incomplete abortion. This necessitated a curettage of the uterus, which was carried out by the house surgeon, Dr. Thorner. During this operation the patient was infused intravenously with 1,000 c.c. of saline solution in order to stimulate the kidneys; the pulse not making the infusion imperative remained good throughout.

The subsequent course was favorable; from the right wound soon only very little secretion drained; the left kidney apparently functionated perfectly, the bed of the patient, in spite of frequently changed bulky dressings, being always saturated with urine. In spite of this apparently satisfactory progress, the temperature three days after the operation again began to rise, most probably in consequence of retention in the right kidney. The rise was more marked in the evening, being followed by a remission in the morning.

It became evident that the patient could not progress favorably with the illy-drained pus cavity in the right kidney. This prompted me to a further operation March 18th, *i.e.*, barely twelve days after the first.

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[1] For the principal and important parts of this past history I am indebted to Dr. Rosentoven, in whose care the patient was prior to her admission to the hospital.

March 18th. Nephrectomy. Laughing gas and ether anesthesia. The original incision on the right side was extended in both a downward and an upward direction. The fatty capsule was incised and the kidney enucleated. Although the kidney was very small its enucleation was exceedingly difficult on account of very firm and massive adhesions; rubber ligature tied around the pedicle and kidney removed. On examination the extirpated kidney was found to consist almost entirely of fatty and fibrous tissue. What appeared to be the ureter, leading from the pelvis of the kidney, was identified; but no blood-vessels of any size could be found. The subsequent microscopical examination by Dr. Mandlebaum showed only a few papillæ in the pelvis, with just enough tissue to be identified as kidney.

March 21st. Patient urinated voluntarily for the first time since the first operation, voiding 90 c.c., and a few hours later again 150 c.c. This urine was cloudy, of an acid reaction, sp. g. 1014, showed a trace of albumin, 1.6 per cent. urea; microscopically many pus cells, no casts.

Normal urination by way of the urethra, however, did not return for ten days more. After this date more and more urine was voided *per urethram* and correspondingly less through the nephrotomy wound. The final closure occurred April 21st, *i.e.*, forty-four days after the first operation.

The pedicle of the right kidney became detached April 7th. At no time were there any serious complications from this wound. Patient was discharged from the hospital May 8th, with a small sinus on the right side.

Proceeding now to an analysis of the various parts of this history, only this much may be accepted with an absolute certainty: It was a case of complete suppression of urine, of three days' standing; furthermore, as the operation and subsequent course have demonstrated, my preliminary diagnosis was erroneous. The question, therefore, arises, how can I justify this erroneous diagnosis, and what, if any, lessons may be drawn from this case, to obviate such errors in the future?

At the outset, it is needless again to call attention to the fact, that anuria as such is not a disease, but merely a symptom; and that when confronted with this symptom it is of paramount importance to recognize the underlying malady; as it is only by a prompt recognition of this malady that we can hope to cope successfully with this symptom; unless recognized and treated according to indications, a fatal issue must almost surely supervene.

As the functional disturbances, acute and chronic nephritis, which may in some severe cases be accompanied by a complete anuria, do not really come into consideration here, I shall pass over this subject with this brief mention.

For the sake of rapid elucidation of the subject, let me remark at the outset that in all cases in which the symptom of anuria supervenes, there must be some obstruction to the passage of urine. From the anatomy of the parts in question it is self-evident that this obstruction must be limited to that part of the urinary tract, the distal part of which may be stated as the mouth of the ureter, and the proximal part as the secreting parenchyma of the kidney. If the normal duplicity of these organs be taken into view, it is self-evident that a complete cessation of the urinary flow can be caused by only one of following conditions: (1) A simultaneous obstruction on both sides. (2) An obstruction in one kidney, the other being congenitally or operatively absent. (3) An obstruction in one kidney, the other being so far diseased that it does not secrete urine. (4) An obstruction or diseased condition of one kidney, the other being healthy; so-called cases of "reflex anuria."

Passing over now to a view of the various pathological processes which may come into consideration as etiological factors in the causation of anuria, we find the following:

(*a*) Calculi. (*b*) Organic strictures, bendings of the ureter, and malpositions of the kidney. (*c*) Compression of the ureters by extrinsic causes, for instance pelvic tumors and exudates. (*d*) Certain reflex influences which are caused by a diseased condition of one kidney, and which inhibit the secretory function of the opposite healthy kidney.

(*a*) *Calculi.*—The most frequent etiological factor is undoubtedly to be found in calculi. The size of the calculus varies very much with the locality where its progress between the kidney and the bladder becomes impeded.

(*b*) *Strictures, Bendings of the Ureter, and Malpositions of the Kidneys.*—Not an inconsiderable number of these pathological conditions, particularly those of a more severe grade, terminate primarily in a hydronephrosis, and this hydronephrosis may finally go on to such a degree as to cause an anuria. In view of the fact that malpositions of the kidney are practically always associated with the bending of the ureter, and, further, that in most cases, the primary termination of strictures is also in hydronephrosis, it will not be improper to consider all these conditions under one heading. It appears most probable, if not absolutely certain, that this method was at play in the causation of the case just reported.

In a normally-built urinary tract, the ureter is of just sufficient length to form the connecting link between the pelvis of the kidney and the bladder. As everybody, however, knows, it is by no means an infrequent occurrence, that the kidney becomes dislodged from its normal position in a downward direction; in other words, the kidney for the time being comes to lie nearer to the bladder. The ureter, however, being more or less firmly fixed behind the peritoneum, does not come under the influence of those forces which have pushed the kidney out of place. The physical result must be, that in a measure the ureter is longer than is necessary to make the connection between the pelvis of the kidney and the bladder. The natural outcome is, that there occurs a bending of the ureter at its junction with the pelvis of the kidney. In other words, the kidney may be said to rise and sink on a radius, the fixed central point of which is just at that portion of the urinary tract where the ureter merges into the pelvis of the kidney.

It is in this minor primary disturbance, of no consequence when compared with the final major lesion, that anuria not infrequently takes its origin. When traced from this point on to its ultimate termination, we will find the following intermediate developmental conditions.

Beginning with the slightest downward dislocation of the kidney, it is readily evident that the only movable portion of the ureter will attain a position which is more horizontal than normal; so that if the process continue the urinary current will finally be in an upward direction. If this be made clear, it is also readily understood, that there must be even at this time some obstruction to the outflow of urine; this in turn results in a beginning dilatation of the pelvis with some stasis of urine. As a rule at this stage there are as yet no symptoms of major consequence, provided that the kidney is freely movable between its normal position and the greatest distance of its excursion, because in the recumbent position (usually at night time), the dislocated kidney readily slips back to its physiological position, affording good drainage to the dilated pelvis. It may also happen in exceptional cases, that the kidney, although freely movable as a rule, does not return to its normal position. During the past summer I had occasion to treat an accident of this nature, which may not inappropriately be termed an acute hydronephrosis.

At about midnight of August 12, 1901, I was summoned to see Mrs. F. K., and obtained the following history. Patient is thirty-one years old, married and mother of three children. Has been complaining for the past five years of pain in the back and indefinite abdominal symptoms, and was variously treated, according to her statements, for "dyspepsia." About six hours before I saw the patient she was suddenly stricken with very severe pains in the right hypochondriac and lumbar region. She presented the typical picture of an attack of renal colic, and my first suspicion was therefore in this direction. On questioning the patient further I elicited the important admission, namely, that patient's urine during the day is as a rule unusually scanty, whereas at night (usually about three hours after going to bed) there occurs as a rule a voiding of a large amount of urine. On this night, in spite of repeated attempts, this did not take place, only about half a teacupful being voided.

On examination I found the right side of the abdomen a somewhat painful and tender mass, about the size of a double fist. This mass was freely movable and I had no difficulty in pushing it upward toward the diaphragm, whereupon the patient experienced almost immediate relief. Within an hour she voided 500 c.c. of a slightly turbid urine, and on my next examination the greatest bulk of the tumor had disappeared, while the remainder could without difficulty be recognized as a dislocated kidney, through the very lax and thin abdominal walls.

To obviate a repetition of this accident I advised nephropexy; but the patient feels so well with a properly padded abdominal bandage that she declines all operative interference for the present.

For a definite period, the duration of which depends upon the degree of mobility of the kidney, the human system accommodates itself to this periodical dilatation and evacuation of the pelvis of the kidney. In the course of events, however, this abuse of the kidney-pelvis leads to a loss of its natural contractility, as a result of which it does not empty itself completely, even when the kidney has been replaced to its normal position. The logical outcome is that there is *always* more or less stagnation of its urinary contents.

The next step in the development is that most probably on account of the gravity of the contents of the sac, the dilatation is not uniform in all directions, but that the most dependent calyces become more dilated than the upper ones. If such a kidney and its excretory duct be examined, the first impression is that the ureter has a faulty insertion, *i.e.*, into the upper part of the pelvis instead of the most inferior part. This faulty insertion, however, is not real, only apparent; what really did take place, is, that the more dilated inferior portion of the pelvis had been dragged away from the insertion of the ureter. Even at this stage of the process a *restitutio ad integrum* is still within the range of possibility; by replacing the kidney into its physiological position and retaining it there in a manner best suited for drainage, *i.e.*, with the ureteral insertion into the pelvis in the most dependent portion. If this be not done organic changes occur which are predestined from now on to frustrate our efforts in this direction.

While it is true that the surrounding structures accommodate themselves for a time to the presence of the more or less large foreign body, eventually, as a result of the compression of the renal vessels, and as a result of the constant irritation, adhesions are formed, not only between the kidney and the surrounding viscera, but also between the pelvis of the kidney and the ureter. In the beginning these adhesions are slight and easily torn by manipulation, but ultimately under the influence of continued irritation and congestion they become more and more firm. When this stage has been reached, they fix the ureter permanently into the pelvis of the kidney in an abnormal position, so that even were the kidney replaced into its normal physiological position, this procedure would be analogous to a reduction of a hernia *en bloc;* in other words, the reduction would have no effect upon the ureter, and the drainage of the hydronephrotic sac would remain still unimproved.

If the kidney and its excretory duct, the ureter, be inspected at this stage, we would find the following anatomical relationship. The normally fixed portion of the ureter would in no manner be changed, except, perhaps, that it would be drawn somewhat more taut than is normal; at its most superior point there would be a downward bending, at a very acute angle, terminating in the very much dilated pelvis of the kidney. The contiguous surfaces of the kidney and the ureter will be found to be adherent to each other in such a manner, as to make it appear at first sight, that the ureter is inserted in the most favorable position for drainage, *i.e.*, at the most dependent point. If the parts, however, be carefully dissected, it will be found, that the true insertion is high up, at the acute angle before mentioned and entirely inadequate for proper drainage.

The pathological process may stop at this point, but more probably it will go on to further changes, under the influence of continued kidney secretion and continued obstruction to the outflow. Influenced by the two aforementioned physical forces, the pelvis becomes more and more dilated and organic changes take place at the bending of the ureter, with subsequent valve formation, blocking further the exit from the pelvis. The widely-dilated pelvis also effectually compresses the now doubly-fixed ureter, and when there is no more sufficient *vis a tergo* to overcome the barrier no urine will drain from this kidney into the bladder, giving rise to a typical picture of anuria on this side.

(*c*) *Anuria by Compression.*—Pelvic exudates and pelvic tumors, particularly those of a malignant nature, may reach such a size as to effectually compress the ureter against the passage of urine.

(*d*) *Reflex Anuria.*—In order to save repetition, this most important and interesting etiological factor will be considered under the heading of differential diagnosis.

The primary bilateral nephrotomies, and the subsequent secondary nephrectomy on the right side, have led me to believe that in the case of complete anuria just reported, I had to deal with a non-functionating right kidney and a functionating hydronephrotic left kidney, the latter being caused by a bending of the ureter, which in turn took its primary origin in a floating kidney. My belief in the correctness of this diagnosis has been strengthened by the careful observation of the post-operative course of events, and by the recovery of the patient. I arrive at this conclusion by the logical process of definite exclusion of all those other processes, which may be considered as possible etiological factors in the production of anuria.

To recapitulate, before operation we are compelled to consider the following possibilities in addition to the one just described: (1) Pelvic tumors and pelvic exudates; (2) organic strictures of the ureter; (3) calculi; (4) reflex anuria.

1. *Pelvic Tumors and Pelvic Exudates.*—Prior to the operation there was certainly good ground for considering this possibility, and it received its due share of estimate. Vaginal examination revealed to the right of the uterus an indefinite mass, which, when taken in connection with the absence of the menses for two periods, might have been mistaken for an extra-uterine pregnancy, ruptured or unruptured; which might possibly have involved and compressed the mouth of the ureter. There were, however, no symptoms pointing to a ruptured extra-uterine pregnancy, while the mass itself was too freely movable to have been enabled to induce so marked a compression of the ureter as to cause an anuria. After the operation it was seen that this possibility could not have come into play, as the mass was situated on the right side, while the only functionating kidney was situated on the opposite side.

2. *Organic strictures, particularly obliterating strictures of the ureter,* while considered, were excluded before the operation by the absence of any history of ureteritis, the sudden onset, and the anamnesis. After operation they may be excluded by the fact that the nephrotomy wound healed completely, without any subsequent operative interference upon the ureter.

3. *Calculi in the Pelvis of the Kidney or Ureter.*—Figuring probabilities, one must naturally come to the conclusion that it is and must be an occurrence of the greatest rarity indeed that there should occur a simultaneous plugging up of both ureters or pelves by calculi. While of course this is not an impossibility, I am sure I will meet no opposition, when I say, that the extraordinary rarity of this occurrence should almost practically exclude it from lengthy consideration. The subject of calculi in the urinary tract can not, however, be dismissed with this knowledge of improbability, as it has a further and more important bearing in the etiology and pathology of anuria. Actual experience has shown that anuria may also be caused by a calculus plugging up one ureter or one kidney only, in spite of the fact that the other kidney is normal in all respects. This brings us to the consideration of those cases of anuria which have been termed "reflex anuria." Before entering upon this subject at greater length, it is but right to state that this condition may be brought about by other conditions as well, but as it is most frequently caused by concrements, it is perhaps best to illustrate it on this basis.

4. *Reflex Anuria.*—When confronted with a case of anuria, it is but natural at first sight to think of some mechanical obstruction to the flow of urine; clinical experience, however, has shown that in addition there occur a number of cases in which this mechanical obstruction does not exist, and that the true trouble is to be sought in the secreting parenchyma of the kidney. The occurrence of these cases is amply proven not only by clinical experience but also by animal experiment. Experimentally, by increasing the

intrapelvic pressure of one kidney it is possible to effect an inhibitory influence upon the secretion of the opposite kidney.[1]

As previously stated, not only has this theory been proven experimentally, but there are on record also a number of well observed cases, which prove without any doubt also their clinical occurrence.

Without going needlessly into a detailed description of the pathological condition, I shall be permitted to illustrate it by a picture, as it not infrequently occurs. The process presumably begins with two kidneys, one of which is perfectly healthy, while the other forms the habitat of a round calculus, the diameter of which is presumably just a trifle larger than the diameter of the ureter. For some reason or other this calculus begins its downward migration and becomes engaged in the ureter; but being too large for passage, it effectually closes up this ureter. For a while this kidney continues to secrete urine, which is naturally bound to increase the intrapelvic pressure; and this increased intrapelvic pressure acts reflexly upon the opposite healthy kidney in such a manner, as to inhibit and finally totally suppress its secretion.

Let us now see what value and reliance are to be placed on the knowledge of these facts when a case presents the physical symptoms enumerated in my case. There are several points which, as in all cases of difficult diagnosis, aid us in arriving at a conclusion. These points are the anamnesis and physical examination. Leaving entirely out of consideration the fact, that a fair order of intelligence is required on the part of the patient to obtain an anamnesis of value, it is precisely in cases of anuria that we have to take into account the additional obstacle, that not infrequently, on account of the severity and nature of the ailment, the condition of the patient is such, that not much reliance is to be placed upon the answers obtained. In the case reported, the most important points obtainable were as follows: (1) A history of malaria (?); (2) increased frequency of micturition; (3) sudden onset of the present illness, with very severe pain in the left hypochondriac and left lumbar regions; (4) no history whatsoever pointing to involvement of the right side.

The physical examination, excluding those signs which had no bearing in the case, revealed (*a*) a very large, painful, and tender mass on the left side in the region of the kidney; (*b*) very slight tenderness in the corresponding region of the right side.

If we wish to interpret, before operating, the various parts of the past history, and the presenting physical signs, it is the writer's opinion that the following conclusions were justifiable:

(1) All those parts of the history which the patient collects under the term of "repeated attacks of malaria" may have been caused by a suppurative process of the left kidney, possibly a calculous pyelonephritis.

(2) The sudden onset of the present illness, with sudden, sharp and severe pain in the left hypochondriac and left lumbar region may be interpreted as an obstruction of the ureter by a preexisting calculus.

(3) The physical examination revealing a large, painful and tender mass occupying the region of the left kidney, and approximately normal conditions on the right side, should be interpreted as most probably a calculous hydronephrosis or pyonephrosis, which by increasing the intrapelvic tension has most probably caused reflexly an inhibition of the secretory function of the right kidney.

During the operation, however, the faultiness of this diagnosis soon became manifest. As careful and as lengthy a search, as the condition of the patient admitted, failed to reveal the presence of a calculus in the left kidney; while the right kidney, as already stated, was represented merely by a mass of cicatricial tissue, containing in its center a small amount of pus. Of course it may be argued that the left-sided hydronephrosis may have been caused by an impacted calculus in the unexplored portion of the ureter; this theory, however, is in the writer's opinion thoroughly refuted by the following points:

Such an impacted calculus may terminate in one of following methods: (*a*) It remains impacted in the ureter; then the nephrotomy wound would refuse to heal; (*b*) it may be passed into the bladder; then either it undoubtedly would have been discovered, or it would have been passed *per urethram;* (*c*) it may have been extruded through the nephrotomy wound; then, with the care devoted to the patient, it would also have been discovered.

After considering the various possibilities in this manner, and excluding those which have been proven to be manifestly wrong, either by the operation, or by the post-operative course, we can come only to the following conclusion, which, no matter how critically viewed, will be found to stand the test in all particulars: Anuria in a patient with an absolutely non-functionating right kidney,* the left kidney being hydronephrotically dilated, due to a downward displacement of the kidney, resulting in such bending of the ureter, as to completely interfere with the passage of urine.

Treatment.—If the literature upon this subject be carefully reviewed, it must be conceded that occasionally cases occur in which recovery takes place without any interference, even if several days have elapsed since the onset of the anuria. These fortunate terminations, however, are so rare that it would be manifestly wrong to permit the condition to go on for any length of time, without any attempts at relieving it.

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[1] Chirurgische Klinik der Nierenkrankheiten. Prof. Dr. James Israel, Berlin, 1901.

* The small amount (4 c.c.) of fluid found in the bladder was undoubtedly merely a downward leakage from the pus-sac in the right kidney; as already stated, it contained merely the faintest indication of a trace of urea.

If the nature and pathological anatomy of anuria be understood, it does not require much argument to show that the only interference can be a surgical one. It is also readily conceded that the principal indication which the treatment must bear in view is the excretion of urine, in order to rid the system of the various deleterious substances which are separated through the medium of the urine. The attainment of this object is of paramount importance; all other points are secondary and must give way to this primary indication. In other words, the excretory function of the kidney is the important one; the passage of urine into the bladder is secondary. To attain this point, there can be but one answer, and that is *nephrotomy*.

Nephrotomy having been decided upon, the question naturally arises as to which kidney is to be attacked; it would be manifestly wrong to incise that kidney which has even some time prior to the onset of the anuria done no work and which is so far diseased that no work is to be expected from it. In order to be able satisfactorily to decide this point, it is of the utmost importance to make as exact a diagnosis and differentiation of the underlying pathological condition, as the circumstances will permit.

The immediate indication having been met by nephrotomy, if the patient's condition will allow, further steps may be taken at the time of the operation toward relieving some of the mechanical obstructions which may be met with. As drainage and relief of the congestion of the kidney parenchyma are the major indications, it is self-evident that suture of the incised kidney is absolutely contraindicated.

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DEXTROCARDIA DUE TO PULMONARY CIRRHOSIS. WITH PRESENTATION OF CASE.[1]

BY HENRY LEVIEN, M.D.,
OF LIBERTY, N. Y.

THERE are but few text-books in which dextrocardia, or displacement of the heart to the right side, is given any consideration, though cases of this nature are by no means uncommon. A more or less thorough description of this condition is given by Osler in a special essay[1] and also mentioned by him in another book,[2] devoting a few lines to this subject and dismissing it by saying that "it is one of purely anatomical interest."

Because it bears a direct relation to pulmonary diseases, we deem this phenomenon of considerable importance; it is more than an anatomical curiosity, especially for those who are interested in phthisiology as such; and, therefore, having a case of this nature to present, it is not amiss to offer a condensed review of the subject, as the literature of it is quite meager.

We call the position of the heart in the right side abnormal, because normally we look to the apex beat in the fifth intercostal space slightly to the right of the left mammary line. This malposition is due either to congenital causes or to pathological changes in adjacent organs. In congenital malpositions the heart may be placed vertically in the chest, the apex beat noticeable at the lower end of the sternum. Sometimes the organ is situated transversely. *Ectopia cardis* is a very serious congenital malposition, which is due to failure of closure of sternum; there are also cases in which the heart lies outside of the chest wall.

There are malpositions consequent upon the disease of the heart itself or its membranes: in pericardial effusions the apex is slightly raised and the heart itself is pushed backward. In dilatation and hypertrophy the heart occupies a large area of the chest, and the apex can be found in the left axillary line in the seventh or eighth intercostal space.

To quote Osler: "To understand clearly the effects upon the position of the heart in disease in contiguous organs we must bear in mind their mutual relations. Situated in the mediastinum between the lungs on either side it is subject to the elastic traction of these organs, which counterbalance each other; but if from any cause the elastic tension of one lung is suppressed, as in pneumothorax or in pleural effusions, then the other lung may also collapse to a slight degree and pull over the mediastinum and with it the heart."

With this comprehensive quotation in mind, we are in better position to touch on malpositions due to changes in contiguous organs, and the following may be briefly considered.

Changes in the Chest Wall.—In some cases of rickets there is an incurvation of the ribs and costal cartilages with consequent alteration of the position of the heart. In curvature of the spine there may be considerable malposition of the heart as well as of the great blood-vessels.

When we come to consider the affections of the lungs and the enveloping membrane we shall find that in emphysema pulmonalis the heart may be displaced or rather pushed downward, and the apex beat seen more to the right because of the pressure exerted upon the diaphragm. As we mentioned before, in pleuritic effusions the displacement of the heart to the sound side is almost of constant occurrence if the exudation is of any considerable amount. After the exudation is absorbed or the sac emptied by operative procedures, provided no strong adhesions were formed, the heart returns to its previous normal position. In this connection I may mention two cases of empyema in children who were under my care and close observation, because of the dislocation of the heart.

One child, two years and a half old, an exceptionally large child, weighing more than forty pounds and looking as one of at least four years old, developed lobar pneumonia. This case terminated apparently well by crisis on the ninth day, yet in the third week it developed empyema on the same left side. Having been called to see the child again, and looking for the cause of the unexpected trouble, I was struck to find the apex beat on the right side of the sternum, which condition, I was sure, did not exist when I treated the boy when he was suffering from pneumonia, as I examined the heart repeatedly. This abnormal position of the heart gave me a hint of an extensive empyema on the left side, and on introducing an aspirating needle I withdrew a syringeful of pus. I operated on the child the same day. It being a recent case I made an incision only, under ether anesthesia, large enough to introduce two fingers, and about a quart of pus escaped. Soon after the operation the heart was noticed to recede to the left side, and after three weeks, when the last dressing was removed, I found the heart and apex beat in the normal position.

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[1] Read, and case presented, before the Sullivan County Medical Association, April 9, 1902.

In my second case, empyema on the right side, a resection of two ribs was indicated, as the case was a neglected one; the heart was pushed to the extreme left, and after six weeks' drainage and irrigations the heart gradually returned to its normal position.

To go over to the particular subject to which I wish to engage your attention, namely, the displacement of the heart to the right side of the chest because of sclerotic changes in the lung substance: generally this dislocation is associated with displacements of other organs, the liver to the left, the spleen to the right. In the present case no displacements of other organs are found. In such malpositions the area of cardiac dulness in the usual position is wanting, and on careful percussion it will be detected across and to the right of the sternum, as in our case. I mentioned careful percussion, because, as in the case presented, the right lung being consolidated or rather indurated, one must carefully differentiate between the normal *cardiac* flatness and abnormal pulmonary dulness due to consolidation. Our case seems to be of particular interest, inasmuch as the right heart rests on a cavity, just as a formidable rock leans on the bank of a precipice ready to plunge in and be absorbed, or to fill up the gaping abyss. The case before you is one of cirrhosis of the right lung, due to fibrous phthisis, as Austin Flint would call it; there is a cavity of considerable size in the middle lobe anteriorly. The heart is drawn to the right side, showing the apex beat in the fourth intercostal space about half an inch to the right of the sternum. The cardiac action, as is usually the case, is not in any way affected. The pulse is normal, eighty beats per minute; there is no suffering from cardiac dyspnea.

The history of the case, as taken from my casebook, dated January 3, 1902, is as follows: Mr. P., twenty-six years old, single, store clerk, Austrian, came over when ten years old; family history negative. Five years ago he "caught a cold" while doing some hard work out-of-doors; he coughed a good deal, went for a short time to the country, got better, returned to previous occupation (long hours, badly-ventilated apartments, no sunlight, store being located in a basement); "caught cold again," since which time he was always coughing and with much expectoration. Had one slight attack of hemoptysis. Had night-sweats and hectic fever. Returned from Colorado about three months ago. Appetite poor, looks pale, bowels constipated, emaciation considerable. Lost fifteen pounds during a short illness; his weight, 110 pounds. Examination of his lungs as just mentioned; sputum examination revealed numerous tubercle bacilli in colonies and rods. Since then he has gained considerably in weight, to 115 pounds; appetite improved, bowels more or less regular, and the general condition brighter. The sputum examination March 2d shows a number of tubercle bacilli, but not so many, and no colonies.

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[1] Pepper, Encyclopedia of Medicine.
[2] Keating, Encyclopedia of Children's Diseases.

THE MODERN TREATMENT OF PTERYGIUM.

BY F. B. LORING, M.D.,
OF WASHINGTON, D. C.

NOWHERE, perhaps, does time count for so much as in minor surgery and above all in the minor surgery of the eye. A patient expects and is, perchance, willing to give up his business or occupation for a serious injury and he realizes that this must be done for a major operation; but small matters, particularly when they are not accompanied by much pain or inconvenience, are generally postponed until they have become serious enough to demand relief and even then the invariable question is, "How long will it take, and for what length of time shall I be forced to give up my work?" This is particularly true of pterygium; as a rule, it does not occur in women, in whom the disfigurement would lead to early treatment; nor does it generally produce much discomfort until it has encroached upon the cornea, with a resultant loss of vision, so that these cases do not often find their way to a surgeon until the disease is far advanced, and the treatment under the old methods offers quite a problem; for it must be remembered that the apex of the pterygium is not the boundary of the disturbance in the corneal elements, but that there is a patch of haziness beyond it and that even when this is not apparent by examination, the structure of the cornea is apt to lose its homogeneousness, and may thus produce irregular refraction, as was demonstrated by the ophthalmometer by Noyes. This accounts for those cases of impaired vision in which the growth has not yet encroached upon the pupillary area, and goes to show that it is not always safe to postpone operative interference, because there is a band of seemingly clear tissue between the growth and the margin of the pupil. As a rule, however, the patient *has* postponed it, and we are confronted with an affected cornea and a mass of hypertrophied conjunctival and subconjunctival tissue, the removal of which will leave a dense opacity of the cornea and a thick and tendinous cicatrix at its base, particularly when this is large and vascular.

To meet this condition many operations and modifications of them have been in vogue, but they may be all classed under three heads:

1. *Excision,* which consisted of dissecting the apex from the cornea with a pair of curved scissors or a cataract knife, and then, having freed the edges of the conjunctival portion, of excising it at about a line or a line and a half from the limbus, the conjunctiva being then brought together by sutures. This was the usual operation as advocated by Arlt and modified by Pagenstecher, who simply turned the excised portion back, and having brought the edges of the cut conjunctiva together with sutures, allowed the separated part to shrink and gradually disappear.

2. *Transplantation,* which differed from the operation just described simply in the fact that the freed corneal portion, instead of being excised, was inserted in a wound in the conjunctiva below the cornea, where it could not encroach on it. This was particularly applicable in those cases in which the pterygium was very large, and was first introduced by Desmarres, who detached the growth quite up to its base; he then made an incision in the conjunctiva, parallel to the lower edge of the cornea and retained it there by sutures. This was improved on by Knapp, who divided the body of the growth after the excision of the corneal portion by a horizontal incision, covering the wounds by square flaps of conjunctiva from the tissues above and below.

3. *Ligature,* which consists of strangulation by sutures. This was introduced by Szokalski, who allowed the ligatures to remain in place for five days, and then cut out the atrophied portion. He claimed that the cure was permanent, and that in no case had the difficulty recurred; but the published reports from the operation have been meager, as the procedure does not seem to have been a popular one, probably from the length of time necessitated by the treatment.

In regard to the first two methods, the objections are bifold: In the first place, the stripping of the growth from the cornea, no matter how skilfully it is done, leaves a denuded spot, which extends during the process of repair beyond the original wound and is seldom, if ever, completely absorbed. It must be remembered that the disease itself is almost always one of adult life and occurs in tissues that are already weakened and relaxed. In the second place, the bulk of the remaining conjunctival mass presents not only a most disfiguring appearance, but from its shrinking into tendinous bands often leads to a feeling of traction that impedes the motion of the eye and gives rise to a general sense of discomfort; and in those cases in which the base was broad and the consequent loss of substance large, the cicatrix is at times dense and prominent, producing what is called "secondary pterygium," which, according to Wells, sometimes requires a subsequent operation.

Added to these drawbacks, which relate more to the operator than to the patient, we still have the interest of the latter to consider, for on him falls the brunt of the trouble—the loss of time, the interference with business and the suffering and expense of a tedious convalescence; and as these cases usually occur in persons of the middle classes who are subjected to exposure and the vicissitudes of an outdoor life, it is often impossible for them to submit to any treatment that interferes with their occupation.

A little over a year ago, Dr. A. Coe, of Washington, read a paper on a new operation for pterygium and presented a case before the Washington Ophthalmalogical Society. This method consisted in the direct application of the cautery to the apex of the pterygium on the cornea, leaving the rest of the body to take care of itself. The case presented had been operated on some months before and the cautery had been applied three times at intervals of a few days, the first application being made to the center of the apex and the two subsequent ones laterally. The instrument used was a platinum wire with a bulbous head of about the size of a small pea, and the results of this, the initial case, were most satisfactory. There was still a white opacity—where the apex had rested on the cornea, but the tissues up to that point were clear and transparent, and the opacity itself was evidently much thinner than it had been and there was a great reduction in the size and vascularity of the pterygium. Since then I have used this method in twenty-three cases, and with complete success except in one case, which was very large and vascular, with a central vessel of considerable size that I ligated, the only case in my experience in which the cautery, alone and unaided, has not proved sufficient. The operation is simplicity itself; all that is required is an alcohol lamp and a platinum wire; the latter I have changed from a bulbous point to a hook of about three and a half millimeters in width, and one in thickness mounted on a wooden handle. After the eye is thoroughly under the influence of cocaine, I press the bottom of the convexity heated to a white heat against the point at which the apex protrudes above the surface of the cornea, on the pupillary side, and then, elevating the handle, bring the rest of the platinum to bear in a direction parallel to the axis of the pterygium from the apex toward the base. One application of the cautery, if thoroughly done, is generally sufficient, and my habit has been, when it has been possible, to put the eye through a preliminary course of treatment with Pagenstecher's ointment of the yellow oxide of mercury to reduce the vascularity and to decrease the size of the growth as far as possible before operating. This is again continued a few days after the throwing off of the eschar, vaseline being substituted for the hydrated glycerole of starch as a menstruum, as it produces less pain and subsequent inflammation.

As to the etiology of the disease, it is hardly a point that enters into a description of an operation; yet I cannot help expressing the opinion, while the text-books all agree that it is due to exposure, to a seafaring life, to the effects of dust, glare, and external irritation, that at least heredity does exert an influence on its production. Of the twenty-three cases treated by me several were brothers, one of whom only had been exposed to the conditions supposed to be favorable to its production. One man stated to me that his father had had it in both eyes, and on his second visit brought his son, a strumous lad of fourteen, who had passed his life in a child's hospital, entirely removed from any source of ocular irritation whatever. Not only was this the youngest case that I have heard of, but it was the only one that I have ever seen that was vertical, the base being immediately above the insertion of the superior rectus. His father stated that it had existed for some time, and there was no history of any preliminary attack of phyctenular conjunctivitis or pinguecula. Of course it is impossible to form statistics from such a limited number of cases as twenty-three; but, small as the number is, it is large enough, I think, to have demonstrated the fact that there is no pain at the time of the application of the cautery, nor after it; that it is not followed by inflammatory reaction, that there are no sutures to be removed, nor wounds of a protracted nature to be healed; that the patient loses little or no time from his vocation; and, in short, that the operation has been removed from the domain of major surgery to one of the most minor operations of the eye.

REPORT OF A CASE OF GRAVE ANEMIA.[1]

BY J. S. TRIPLETT, M.D.,
OF HARRISONVILLE, MO.

THE report of a case in practice is submitted for your consideration, first, because I believe the report will bring out practical and interesting points; second, because the diagnosis had to be arrived at mainly through laboratory investigation; third, because the most important pathologic findings in this particular case constitute a comparatively new field in the causation of disease, *viz.*, hematology; fourth, because I hope to be able to demonstrate the lesion under the microscope; fifth, because cases of this nature are not frequently encountered.

On July 13, 1901, Mrs. X., white, married, age fifty-one, no children, occupation housewife at farm, consulted me at my office for diagnosis of her condition. The exertion required in mounting the stairs exhausted her to such a degree that she was unable to engage in conversation for ten or fifteen minutes. She gave the following history:

Family history entirely negative. Previous to about two years ago her health had been exceptionally good; her usual weight ranging about 140 pounds. Her present illness then began, although she can fix no definite date from which to reckon her feeling of languor, which eventually became extreme; still she kept on with the performance of her duties, which consisted of light housework, that of a seamstress, and occasionally that of a nurse, thinking that she would finally overcome her malady without the aid of a physician. During the greater part of this time she lived alone. About one year ago she was married, since which time she has lived on a farm, performing such duties as pertain thereto. Her married life was entirely satisfactory and happy. Her health still continued to grow worse, strength and energy gradually declined, weight decreased, and anorexia became more pronounced. With the oncome of the excessive heat of June and July she failed more rapidly, ate very little, complained of nausea and pain in stomach, drank very little water and slept badly; complained of a throbbing sensation in left chest at lower costal margin, faintness and a tingling sensation in lower limbs below knees; also noticed some swelling at ankles.

It was in this condition, after much persuasion on the part of her husband, that she consented to consult a physician. As stated above, the exertion of mounting the stairs produced such breathlessness and faintness that she was unable to converse for several minutes. Her countenance was pale, as was also the mucous membrane of the lips and gums and tongue. Pulse 100; temperature 99.6° F. Slight hemic murmur at inner side of apex.

The subjective symptoms complained of were loss of appetite, occasional nausea and pain in stomach, very decided indisposition to exertion, and inability to endure any kind of exercise without faintness, breathlessness and palpitation following. Special senses showed no departure from the normal.

Blood examination showed malarial infection and poikilocytosis, with .45 per cent. hemoglobin by Hammerschlag.

June 19th, patient again reported in town, but could not climb the stairs to reach my office. Her condition had not improved.

July 25th, I saw her at her home in the country, where I have subsequently seen her at intervals of two or three days. Her condition has now compelled her to keep her bed. She suffered no pain, but became in turn melancholy and hysterical, which condition continued for about two weeks, then subsided not to reappear, and her mental faculties have remained unimpaired throughout her illness.

As time progressed symptoms were intensified and new ones appeared. Faintness and palpitation became so marked that she would lose consciousness on being raised from the horizontal position. The skin presented a blanched and waxy appearance, the tongue seemed bloodless, the muscles became flabby, rather than wasted, edema at ankles increased, and slight puffing below the eyes was noticed. The tactile, pain, pressure and thermic senses were progressively obtunded and finally lost from the feet to the hips; muscular action was also lost in same manner. A bed-sore made its appearance over the base of the sacrum with no tendency to heal, and later one developed on the outer aspect of the right thigh two or three inches below the trochanter major.

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[1] Read before the Hodgen Medical Society, Harrisonville, Missouri, October 3, 1901.

Following shortly after the paresis of lower extremities, the rectum and bladder became involved; hardened feces accumulated in rectum, and nurse had to remove same with fingers; flatus and liquid feces passed involuntarily and without patient's knowledge; bladder became distended and a large quantity of urine was withdrawn; bladder was thereafter regularly catheterized every six hours.

On September 20th, the progressive march of the disease seemed to come to a standstill, and the patient's condition remained as just described.

The temperature throughout her illness has ranged from 98 to 102° F., without regard to rhythmic periodicity of days or hours, nor was it influenced by medication. The pulse was rather thin and feeble, from 76 to 100 per minute, showing most variation after or during exertion or exercise (passive, as alcohol rubs, cold rubs and massage).

September 24th, urinalysis showed reaction acid; specific gravity, 1010; phosphates, 5 per cent. (normal 8—10 per cent.); chlorides, 6 per cent. (normal 8—10 per cent.); chlorides, 6 per cent. (normal 10—12 per cent.); urea, 0.019 (normal, 0.02—0.03); nucleo-abumin present; mucous corpuscles present; pavement epithelium present; bacteria present; diazo-reaction, negative; bile, none.

Several blood examinations were made and much interest attached to the findings in these examinations, because here I was able to demonstrate the effect of the cause, if indeed not the cause, of the grave anemia and oligocythemia.

From the beginning of my observation of the case to September 20th, there was a progressive decrease in the percentage of hemoglobin, reaching at one time even as low as 30 per cent. by Hammerschlag, and each examination showed malarial infection.

Poikilocytosis, *i.e.*, red cells of irregular size, shape and form, was observed in all slides examined.

The following cells, pathognomonic for certain anemias, are well shown in some of the slides, which I have prepared for inspection: (1) Normoblasts, small nucleated red cells. (2) Megaloblasts, cells which are two to four times larger than normal red cells, and provided with a large nucleus. (3) Small mononuclear leucocytes or lymphocytes are observed in increased numbers. (4) Polynuclear leucocytes are observed in diminished numbers. Red blood corpuscles October 2d showed 1,144,800 per cubic millimeter.

I believe the anemia in this case has been caused by chronic malarial cachexia. I will say that patient does not cough or expectorate, and that several examinations have failed to show any evidence of malignancy.

The patient died November 2d.

MEDICAL PROGRESS.

PHYSIOLOGY.

Exclusive Meat Diet and Certain Modifications of Nutrition.—As the result of experiments on dogs fed exclusively with meat, E. DUFOURT (Jour. de Physiol. et de Pathol-Gen., May 15, 1902) found in 75 per cent. of the cases albumin and normal bile pigments in the urine. There was a great increase in the quantity of indican, as well as in the nitrogenous extractives. There occurred marked emaciation, together with trophic disorders of the skin. Exclusive and excessive meat alimentation rapidly produces congestion of the kidneys and liver, and causes a considerable increase in the toxic by-products of nutrition.

Action of Raisin-juice on the Organism.—Of eminent value in practical therapeutics are the conclusions arrived at experimentally by H. MOREIGNE (Arch. de Méd. Epér. et d'Anatomie Pathol., May, 1902). The administration of raisin-juice causes increased diuresis, diminished acidity of the urine, diminution in the relative and absolute quantity of uric acid; a derivative action on the intestine, which gives it value as a laxative, and a diminution of intestinal fermentation; its metabolism tends to spare the nitrogenous elements of the tissue; it causes a disposition of fat in the organism; it stimulates the hepatic mechanism, particularly the secretion of bile. The particular virtue possessed by raisin-juice in saving the nitrogenous tissues and leading to a formation of fat makes it of singular value in the treatment of diseases accompanied by a rapid wasting, for example, tuberculosis.

Local Reactions of the Arterial Wall to Internal Pressure.—Like smooth muscle in other situations, the muscular coat of the arteries reacts, according to W. M. BAYLISS (Jour of Physiol., May 28, 1902), to a stretching force by contraction. This is similar to the increased force of the heart-beat produced by augmented intraventricular pressure, and the contraction of the body walls of the earthworm in response to a pull. The author observed this phenomenon of reflex activity of the arterial wall in the course of experiments on vasodilator nerves. On stimulating the central end of the depressor nerve of the rabbit, there is a passive diminution in the volume of the hind limb, which is caused by fall of blood pressure. As soon as the excitation ceases and the previous height of blood pressure is attained, there is a considerable expansion of the limb lasting for some time. This expansion is due to the relaxation of the muscular wall of the arteries, which soon responds to the rise of pressure by returning to its original state of tone. The arterial wall also reacts to a diminution of tension by relaxation. These reactions are independent of the central nervous system, and are of a myogenic nature. They also occur in excised arteries, which proves that the phenomena in question are due to no other cause than the change of tension, and also proves their myogenic nature. The practical value to the organism of these reactive powers of the arteries is as follows: They provide for a constant flow of blood to the tissues supplied by them, whatever may be the height of the general blood-pressure, except in so far as they are directly overruled by impulses from the central nervous system.

The Formation of Lymph by the Liver.—A valuable contribution to the interesting question of the mode of formation of lymph in the body is furnished by F. A. BAINBRIDGE (Jour. of Physiology, May 28, 1902). The view has been promulgated by Asher and Barbera that the formation of lymph is to be attributed to an increased activity of the tissues and that changes in blood-pressure have nothing to do with it. These investigators increased the activity of various organs, including the liver, by means of intravenous injections of ox-bile, ammonium salts and sugar, which substances led to an increased flow of lymph from the thoracic duct. They assumed that this indicated an augmented metabolism of the liver. Instead of bile, Bainbridge injected a definite quantity of sodium taurocholate into the femoral vein and thereby caused an increased flow of lymph from the thoracic duct. This lymph was tinged with hemoglobin. After ligation of the liver lymphatics in the portal fissure, the injection of sodium taurocholate caused no augmentation in the flow of lymph. He therefore concludes that the latter is derived from the liver. Starkling disclosed that there are more solids in liver lymph than in mixed lymph, and that the former clots more readily. In connection with these facts it must be noted that the intravenous injection of bile-salts causes an increased flow of bile, as well as an increased flow of lymph. It was found that the rate and flow of these two substances are similar, although the former reaches its maximum earlier than the latter. Large doses of sodium taurocholate have no influence on the vena cava blood-pressure, while peptone markedly raises the latter. It is evident that sodium taurocholate is not a lymphagogue of the peptone class, nor does it belong to the sugar class, for the latter causes blood-pressure changes of the nature of hyperemic plethora. The increased flow of bile represents an augmented metabolism of the liver cells. According to Shiff, bile-salts are absorbed from the intestine, enter the blood-stream, are taken up by the liver cells and are secreted in the bile. The intravenous injection of bile-salts is therefore nothing more than an exaggeration of the normal physiological process. The bile-salts destroy the red-blood cells and set free nucleo-proteid, which is known to increase the flow of lymph. To eliminate the possibility that the augmented flow of lymph in these experiments is not caused by nucleo-proteid, Bainbridge injected the bile-salts into the splenic vein, so that they could not enter the general circulation. The formation of nucleo-proteid was so small that it could be disregarded. How does the liver cause the flow of lymph? As the result of the activity of the liver, metabolites (products of metabolism) are set free; these have a comparatively small molecular weight, and many of them are of a crystalline nature. They leave the tissues and finally reach the blood-stream, either for immediate excretion by the kidney, or for further metabolism elsewhere. The bile-salts in the circulation stimulate the liver to increased activity. The metabolites reach the lymph spaces surrounding the hepatic cells, where they raise the osmotic pressure of the lymph. As a result water passes by osmosis from the blood to the lymph. The latter loses its excess of concentration and at the same time a flow of lymph is produced. An alternative theory is that the bile-salts exert a specific action on the liver capillaries, causing them to secrete a larger quantity of lymph.

Fatigue in Non-medullated Nerves.—In line with the results obtained by other investigators, that medullated nerve fibers do not show functional fatigue, T. G. BRODIE and W. D. HALLIBURTON (Jour. of Physiol., May 28, 1902) prove that the same is true for non-medullated nerve fibers. Waller had shown that during nerve activity there is an increase in the action current similar to that produced by small doses of carbolic acid, and he inferred that it is this substance which is produced during the passage of the nerve impulse, as a result of the destructive metabolism of the constituents of the fatty sheath. According to this investigator, the active gray axis both lays down and uses up its own fatty sheath; the nutritive process so quickly follows the destructive that it is impossible to demonstrate the evidences of fatigue. Brodie and Halliburton assumed that if this be the case, then it would be possible to discover the phenomenon of fatigue in non-medullated fibers. The non-medullated fibers of the spleen were experimented upon. When these are stimulated with an electric current there results a contraction of the spleen, the volume of which is measured by means of an oncometer. Interposed between the electrodes and the spleen and with the nerve resting upon it, was a tube through which was flowing cold water, slightly above the freezing point. The cold acts as a block, preventing nerve impulses from reaching the spleen. The nerve was then stimulated for many hours, at the end of which time the block was removed. Stimulation of the nerve now evoked a contraction of the spleen which was equally as vigorous as before the persistent stimulation. This proved that the non-medullated nerve fibers of the spleen show no demonstrable evidence of fatigue. Howell and others had referred to the phenomenon of "stimulation fatigue," namely, that certain nerve fibers, mainly of the non-medullated variety, are injuriously affected by prolonged faradization, and are not again excitable until after a period of prolonged rest. According to Brodie and Halliburton, this is not truly fatigue, but the result of polarization of the nerve. The peripheral fatigue of the nerve-terminals in the spleen, which is readily induced, does not vitiate the results of their experiments. Stimulative fatigue is produced in the case of vasomotor nerves, but not in the case of the nerves of the spleen. Stimulation fatigue, moreover, does not bar the transmission of nerve impulses.

Intestinal Absorption of Solutions.—Recent investigations have shown, according to WAYMOUTH REID (Jour. of Physiology, May 28, 1902), that the normally preserved intestinal mucosa is not to be classed as a passive diaphragm between blood on the one side and solution in the gut on the other. The fact that the solutions on the two sides of the membrane are of different constitution gives rise to the following question: To what extent is the end result due to the specific physiological action of the membrane, and to what extent to the difference in composition of the fluids on the two sides? As regards the absorption of water, it is found that the cells of the intestinal mucous membrane are capable of sucking up fluid and passing it to the blood. The cell mechanism can deal with considerable variation of the osmotic pressure of the solution presented to it, but, as the pressure increases, a limit is reached beyond which it is affected and absorption of water is consequently retarded. As regards the absorption of substances in solution, the question revolves upon whether the partial osmotic pressure of the substance in solution in relation to that of the same substance in the circulating blood is the sole determining factor or not. That it is not the sole factor is shown by experiments in which sodic chloride solution in the gut, having the same concentration as the blood with respect to sodic chloride, presents the phenomenon of the absorption of water and salt at the same rate. Since osmosis can play no part in the absorption of salt, this substance must be in some occult way carried into the blood by the cell mechanism. Loeb has shown that salts have specific physiological effects besides those due to the pressure exerted by them in the state of solution. Both 4-per-cent. solution of glucose in water and 2-per-cent. solution of glucose in 6-per-cent. NaCl solution are fluids from which glucose and water are taken up at the same rate. The effect of salting the solution of glucose is that the uptake of glucose is favored at the same time that that of the water is retarded by the salting. The author concludes that from a study of the absorption of weak solutions of glucose it appears that, with the intestinal membrane as normal as experimentation will permit, phenomena present themselves which are as distinctly opposed to a simple physical explanation as are those previously studied in the absorption of serum. Probably with weak solutions of non-irritating substances, the specific cell-action is the main factor, variable, directly or indirectly, according to changes in the physical environment, while there is some evidence that chemical excitation may play a part.

Influence of Respiration upon the Liver.—Concerning the condition of the liver in ordinary respiration, K. WALZ (Münch. med. Woch., May 13, 1902) designates as rest stage the period at the end of expiration when there is neither distention nor compression and the blood-flow is unimpeded though slow. The gall-bladder is lax and its contents remain *in situ.* The inspiration stage of the first degree occurs at the end of quiet inspiration and is absent in purely costal breathing. The convexity of the liver will now flatten, the blood and bile are driven out of the liver vessels and the laxity of the gall-bladder reaches its highest degree. In addition, two other stages may be noted with forced abdominal breathing. In the stage of forced expiration the blood is also compressed out of the vessels, but furthermore the gall-bladder is caught between the quadrate and right lobes and thus emptied. In the inspiratory stage of the second degree the effects are the same as those occurring in the first degree, but to a more marked extent, and the bladder is not compressed. It thus follows that the respiratory liver massage is of the greatest practical value in all cases in which there is stagnation of the bile or sluggish hepatic circulation.

EYE, EAR, NOSE AND THROAT.

Formol, Adrenal Extract, and Cocaine.—The preservation of solutions of adrenal extract and cocaine is a difficult matter unless one is employing large quantities and therefore necessarily keeps one's stock fresh. C. W. HEITZMANN (La sem. méd., May 14, 1902) finds that the addition of one drop of a 40-per-cent. solution of formaldehyde to 30 grams of either of these solutions constitutes a most excellent means of preserving them indefinitely. This applies especially to liquid preparations of adrenal extract and solutions of cocaine and eucaine. These substances thus employed can be used subcutaneously without giving rise to any symptoms of irritation.

Rodent Ulcer.—During the last eighteen months treatment of a number of inoperable cases of rodent ulcer by the X-rays with varying success has been carried out by G. G. S. TAYLOR (Lancet, May 17, 1902). Some have equalled, but none have excelled the following case: The patient, eighty-two years of age, a mercantile sailor, had suffered for twenty years or more from a small chronic ulcer on the right side of his nose, causing great pain, treated without benefit with the usual remedies. Six years ago Taylor himself applied caustic potash to the growth but without benefit. When first seen in May, 1901, all the typical clinical evidences of rodent ulcer were present, extending to the inner angle of the orbit and having destroyed portions of the lids, lacrimal canal and caruncle. Pain was at this time intense. The treatment was begun on May 15th. A current of three amperes was used for twenty minutes twice weekly. From June 12th the sittings were increased to four times a week. Up to August 19th healing had been very slow. On this date treatment had to be suspended because of the sharp reaction indicated by sudden appearance of dusky red erythema about the ulcer, attended by the destruction of the newly-formed epithelium upon its surface and of the surrounding epidermis, brought about possibly by change of the X-ray tubes from one of high vacuum to one of medium vacuum. It took five weeks for the effects of this reaction to disappear, when spontaneous healing began and was very rapid, for on October 15th the ulcer had cicatrized, with the exception of a small area which proved obstinate and where he believes the caustic potash had been used six years ago. On this date treatment by the X-rays was resumed, applied to this unhealed spot for only ten minutes three times a week. The newly-formed scar-tissue was specially protected from their action with double lead-foil shields. The treatment was completed by December 20th. At that time there was not the slightest evidence of disease and since then there has been no recurrence. It is interesting to note also that the conjunctiva of the everted lower lid and that of the inner canthus were covered with a smooth layer of opaque horny epithelium and no trace of the puncta remained.

A Foreign Body Remaining Long in the Air-passages.—A patient of Dr. SHVAGER-LEFFETSKY (Russky Vratch, N. 19, 1902) entered the hospital with what appeared to be croupous pneumonia, which seemed to have taken the normal course; the temperature became normal, but the consolidated part of the lung did not seem to resolve readily. Two weeks later the temperature rose again and in the subscapular region of the right lung there appeared symptoms of pleuritic effusion; puncture, however, did not reveal any fluid. For nineteen days the symptoms remained stationary, when the patient in the night, after a severe attack of coughing, brought up a foreign body, which on examination proved to be a piece of spongeous bone 1½ cm. long and 1 cm. wide. The subsequent examination revealed the fact that the patient most probably got the bone into his larynx some two years before. The bone most probably had lodged in the lower part of the right bronchus and secondarily infected the adjoining parts of the lung. After the foreign body was coughed up all the objective symptoms in the lung gradually disappeared.

Absorption Treatment of Cataract.—A valuable warning as well as inquiry has been started by J. W. WRIGHT of Columbus, O., in a letter to the June Ophthalmic Record. He points out that it has been his experience frequently to operate on eyes for cataract, which have previously undergone what is known as massage treatment for absorption of cataract, carried on in one case ten months. His observation has been that the cornea in these cases was "flabby, having lost its normal firmness." In at least seven of his cases he has had difficulty, due to the injury caused by this so-called "absorption treatment," which, he states, physicians have been recommending to be used for various eye-conditions. [It is hard for us to understand how physicians can recommend to their patients these dangerous experiments in specialties about which the scantiness of their knowledge should lead them to lean heavily on those whose study therein has been adequate.—ED.]

Labyrinth Deafness in Mumps.—Two new cases of this very rare complication of mumps are given by TEXIER (Rev. Hebd. de Laryng., d'Otol. et de Rhin., June 7, 1902). The first case was that of a boy of seventeen years, who became suddenly deaf in both ears eight days after the onset of mumps, involving both glands. The deafness was accompanied by tinnitus and vertigo, the latter lasting three or four days and being associated with vomiting. There was no measles nor running of the ears and nothing abnormal on examination except failure to hear watch, low voice, or tuning forks with either ear. No improvement in eight months. The second case, that of a sergeant in the French army, twenty-three years of age, developed parotitis, first on right side and some days later on left side, with febrile movement. Tinnitus was present in the left ear and the hearing was lost on that side. The tinnitus was like a "breeze through leaves," increasing with noise or exertion. Vertigo came on, but gradually disappeared after some weeks. No syphilis nor other discoverable cause of deafness. No lesion in either ear on examination, yet he remained deaf. Deafness in these mumps cases is complete from the beginning, is accompanied by tinnitus, vertigo and vomiting, and is incurable. Usually the vertigo and vomiting are transient, but in the cases cited they were persistent for a long period.

HYGIENE.

The Mosquito and Yellow Fever.—In the light of recent developments, interesting reading is afforded in the copy of the original paper by C. Finlay (Rev. de la Assoc. Med.-Far. de la Isla de Cuba, II., No. 6, 1902), in which he draws the following conclusions: (1) It has been proved that the Culex mosquito, as a rule, bites several times in the course of its existence, not only when its bite has been accidentally interrupted, but even when it has been allowed to completely satisfy its appetite, in which case two or more days intervene between its successive bites. (2) Inasmuch as the mouth of the mosquito is very well adapted to retain particles that may be in suspension in the liquids absorbed by that insect, it can not be denied that there is a possibility that the said mosquito should retain upon the setæ of its sting some of the virulent particles contained in diseased blood, and may inoculate with them persons whom it afterward chances to bite. (3) The direct experiments undertaken to decide whether the mosquito is able to transmit yellow fever in this manner have been limited to five attempted inoculations with a single bite, and they have given the following results: One case of mild yellow fever, perfectly characterized, with albuminuria and icterus; two cases diagnosed as abortive yellow fever by the physicians in charge; and two ephemeral fevers without any definite character. From these results it must be inferred that the inoculation with a single bite is insufficient to produce the severe forms of yellow fever, and that a final decision as to the efficacy of such inoculations must be deferred until opportunity is found for experimenting under absolutely decisive conditions outside of the epidemic zone. (4) Should it be finally proven that the mosquito-inoculation not only reproduces yellow fever, but that it constitutes the regular process through which the disease is propagated, the conditions of existence and of development for that insect would account for the anomalies hitherto observed in the propagation of yellow fever, and while one might, on the one hand, have the means of preventing the disease from spreading, non-immunes might at the same time be protected through a mild inoculation.

THERAPEUTICS.

Syphilis and Salicylate of Mercury.—The subcutaneous injections of salicylate of mercury have according to literature reached a very large degree of popularity in Germany, Austria, and Russia, but comparatively little in France. The method of preparing the drug ordinarily is one gram of salicylate of mercury in 10 or 15 c.c. of liquid vaseline. One c.c. of this mixture is injected every five or eight days. E. Orlipski (La sem. méd., May 14, 1902) has found that it is preferable to inject ¼ or ⅙ of this dose, but to repeat the injections more frequently in such a way as to administer during the continuation of the treatment the same grand total of salicylate of soda as would be reached by the less frequent larger injections. This method presents the double advantage of assuring an active therapeutic effect and of decreasing the inconvenience which may follow any injection of mercury, such as nodosities, abscesses, pain, etc., all of which are more apt to be present when the dose is large. They also permit the avoidance of an accumulation of quantities, more or less considerable, of mercury in a few areas of the body and also the irritating effects which this drug has upon the organs of elimination, for example, the mucous membrane of the mouth and intestine, the skin, and the kidneys.

Yohimbin in Impotence.—Subcutaneous injections of this drug in cases of neurasthenic impotence have been used with success by Eulenburg (Deut. med. Woch., May 29, 1902). He uses a 2-per-cent. solution in distilled water which must be kept in a dark bottle and may be preserved by a drop of chloroform. He begins with a 5 c.c. (m. 8) of the solution injected into the inner surface of the thigh and increases rapidly to 1 c.c. (m. 16); at first daily, then every two or three days, stopping for a time when twenty injections have been given. No after-effects were observed except a slight chilliness and perspiration in a few cases. The effects are slow, the erections coming on from twelve to twenty hours after injection. The author finds the method safe and reliable in selected cases in which other means have failed.

Action of Dionine on the Eye.—This drug, which has recently been added to the ophthalmological amamentarium, is in reality the chlorhydrate of ethyl morphine, first discovered and studied by Grimaux in 1882. Bruno (Jour. des sci. méd. de Lille, May 24 and 31, 1902) thus sums up the symptoms characteristic of the dionic reaction: Vasodilatation and vascular injection; lymphatic extravasation and edema; glandular excitation and lacrimation; sensation of burning, followed by analgesia. These effects are produced in their entirety solely in the diseased eye and in the healthy eye of cardiac subjects; the intensity of the reaction varying in individual cases. The favorable effects noted in a variety of ocular affections may, in the author's opinion, be attributed to its trophic influence. Perhaps its greatest value lies in its analgesic property, though it is in no sense anesthetic. The author denies any direct antiseptic influence of the drug, the opinion of other observers to the contrary notwithstanding, and attributes its mitigation of infectious processes to the increased lacrimation which it induces. Dionine may be used in solution or in powdered form, the analgesic dose being two drops of a 0.5 to 1 per cent. solution, repeated every two or three hours. In the treatment of affections in which greater reaction is desired a solution of from 5 to 6 per cent. is advised. The drug loses its effect in time, when constantly employed, therefore its application should be intermittent; or where its continued use is deemed necessary, its influence may be somewhat prolonged by application of warm compresses following its instillation. The writer has found it valuable in the following conditions: Superficial foreign bodies upon the cornea; the powder cleansing the cornea and preventing septic complications. In parenchymatous keratitis and granular pannus strong solutions should be used at first, the powder being used later on, and applications should be intermittent. In phlyctenular affections, ulcers, iritis, iridochoroiditis, and infected penetrating wounds, strong solutions or powder followed by instillation of atropine are to be used from time to time. This treatment should be supplemented by frequent analgesic instillations of weak dionine solutions. In glaucoma strong solutions are recommended, associated with eserine and pilocarpine, dionine acting as an adjuvant to these drugs. Dionine, while having no direct effect upon the pupil, is a useful auxiliary to myotics and mydriatics, facilitating their absorption.

Treatment of Basedow's Disease.—The theory that certain poisonous substances formed in the body are neutralized by the secretion of the thyroid and that in Basedow's disease there is an overproduction of the secretion, has stimulated certain authors to treat this disease with the serum of dogs deprived of their thyroid. D. Schultes (Münch. med. Woch., May 20, 1902) had the opportunity to try this method in one case in which severe neutral symptoms formed the prominent feature. He reports favorably, since the acute dementia, swelling of the gland, tachycardia and tremor disappeared very rapidly, to reappear when the serum was discontinued. The dose was ½ to 4½ c.c., internally given three times a day. W. Goebel, in an article in the same number, states that he has obtained fair results with the milk of thyroidless goats. He reasoned that if Basedow's disease depends on a hyperfunction of the thyroid, the iodothyrin would represent the toxic agent and the amount of this formed can be reduced to a minimum by withholding from the patients food containing organically combined iodine.

Physiological Action of Cactus.—There are many drugs purported to possess the physiological actions of digitalis without its disadvantages, yet none seems to have gained universal favor. While studying the various heart-tonics T. Von Zelenski (Klin. therap. Woch., June 1, 1902) found that cactus grandiflora possesses many excellent properties which would merit its more extended use. The nausea and gastric disturbances which make the administration of strophanthus so difficult are entirely absent, nor were headache, insomnia or cumulative action observed. Changes observed in the pulse amounted to an increase in force and volume and a slight increase in frequency; the respiratory and renal systems did not seem to be affected and it is doubtful if any diuresis occurs other than that resulting from the improved circulation. The most gratifying therapeutical results that the author obtained were in incompensated aortic lesions in which the drug almost seemed to be a specific, while for mitral lesions digitalis proved to be better. In a number of other conditions, such as chronic pleuritic exudate and heart-weakness in infectious disease, cactus did good service. The proper dose is thirty minims of the fluid-extract three times daily.

Use of Expectorants.—The old dictum that alkalies are of value as expectorants in bronchitis is seriously doubted by M. Saenger (Wien. klin. Rundsch., May 11 and 18, 1902), who finds that by inhalation these drugs never reach the deeper parts of the respiratory tract, and if taken internally they certainly do not affect the viscosity of the mucus. The only way in which an alkali could reach the finer bronchi would be by the inhalation of one which occurs in a gaseous state, namely, ammonia, but this is too caustic for practical purposes. Certain other drugs, however, can be used by inhalation and have a decided beneficial influence in that they stimulate secretion and thus carry off the old, inspissated crust. Among these are benzoin and menthol. The inhalation of aqueous vapor, while it diminishes irritation, does not possess this property. Secretion may be further stimulated in a number of physical ways, as by exercise, breathing of attenuated air in a pneumatic cabinet, etc. The simplest way for the physician, however, is by giving remedies internally and one of the best of these is hydrastine.

The Diastatic Ferment of the Suprarenals.—The discovery of Loewenhart that most of the tissues contain lipase has been closely followed by that of A. C. Croftan (Pflüger's Archiv für Physiol., May 12, 1902), namely, that diastase is to be found in the suprarenal capsules. This investigator treated a watery extract of the suprarenals of a sheep with ammonium sulphate and obtained a precipitate that possessed marked diastatic properties. He found that this ferment forms maltrose as well as dextrose, and that the quantity of dextrose formed depends on the quantity of suprarenal substance used and the duration of its activity. Comparing this diastatic ferment with that of the pancreas, the author discovered that the latter acts more quickly, but that the reducing power obtained with suprarenal extract is greater than that with extract of the pancreas. In this respect the former resembles more closely the diastase of the blood, and seems to occupy in a certain measure an intermediate place between the ferments of the pancreas and the blood. The suprarenals seem to contain two ferments, namely, maltose and glucose. If the precipitate obtained by the addition of ammonium sulphate to the watery extract of the suprarenals be kept for several hours in alcohol, the sediment is so changed that only a portion of it is afterward soluble in water. This solution is capable of forming maltose, but not glucose, for it appears that alcohol renders insoluble or destroys the glucose of the suprarenals as well as the glucose of the blood. The suprarenals either manufacture the diastatic ferments or filter them from the blood. The presence of diastatic ferments in the suprarenals to an extent nearly as great as in the pancreas seems to indicate that the suprarenals have something to do with the metabolism of glycogen and sugar. The author had recently shown that the formation of normal bile-pigments and biliary acids from hemoglobin and through the agency of the so-called "hepatic forment," is only possible in the presence of sugar or glycogen. He concludes that possibly the pigmentary anomalies seen so frequently in diseases of the adrenals indicate that these organs share in the metabolism of the carbohydrates. He also concludes that it is possible that all these circumstances can be brought into relation with the pathogenesis of suprarenal diabetes, and furthermore with the separation and storing-up of bile-pigments produced by the injection of suprarenal extract.

Strychnine as a Stimulant.—The employment of the sulphate of strychine as a stimulant of the circulatory and nervous systems is usually in doses too small to be adequate, according to the experience of Tvoisfontaines of Liege (La. sem. méd., 1902, No. 23), for producing marked or sustained effects in cases of pronounced weakness of the heart and distinct nervous prostration. The ordinary quantity given hypodermatically would be 0.003 to 0.006 gram in twenty-four hours. This he increases to 0.008 to 0.010 or 0.015 gram divided into three, four or five exhibitions. Under such doses he has never seen any unfavorable local effects appear and never any symptoms of poisoning. It is at times well to combine with the strychnine the sulphate of sparteine in the daily dose of 0.15 to 0.20 gram. Given in these quantities and manner strychnine is of especial service in heart disease, syphilis with cerebrospinal lesions, acute edema of the lungs, pneumonia and the like, and may be continued for long periods. Among children this author has given strychnine in a daily dose of 0.001 gram to a one-month-old nursling for a whole week without any damage. These observations agree with those recently published by G. H. Whiteford of Plymouth to the effect that intramuscular injections of strychnine in large and frequent doses are serviceable to combat surgical shock after operations. During the operation itself their use is a safeguard against shock.

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HONORS FOR MEDICAL MEN.

THE *New York Tribune* in its Illustrated Supplement for Sunday, July 6, records under the title of "An Exalted Profession" some honors that have recently been conferred upon medical men. The writer is evidently of the opinion that the medical profession should be eminently well satisfied with the rewards in the form of titles that have of late years come to distinguished colleagues in many parts of the world. Much is made of the recent Coronation honors in this respect. An analysis of the reasons for which these honors were conferred does not, however, tend to make the ordinary professional medical man feel any special sense of complacency in them.

Sir Arthur Conan Doyle's knighthood was not conferred upon him because of any medical merits, although Dr. Doyle did professional work quite as faithfully as did many others in South Africa, but because of his literary reputation and the fact that he has presented very ably the British side of the controversies with regard to South African affairs. Sir Francis Laking has been the personal physician of the Prince of Wales, now King, for many years and is a close friend of the new monarch. His baronetcy is a tribute to friendship and position, not to professional merits. Sir Frederick Treves' name is said not to have been on the original list for Coronation honors before the King fell ill and required his surgical services. Under the circumstances King Edward could scarcely have passed over the man to whom at the moment he was compelled to trust his life.

While the writer for the *Tribune* feels that the medical profession has many reasons for self-congratulation because of the improvement in its social status ever since the early days of the Victorian era, when physicians were not considered to be of the class that one would invite to dinner or social functions generally, medical men are apt to look at the matter more as did our special London correspondent in a recent letter. The physicians of the Royal Household did not, it seems, receive invitations to the Coronation ceremonies that were to be in Westminster Abbey although most of the rest of the household did. This is only according to the traditional usage in the matter, but it shows that the old sense of social indignity with regard to the profession still holds. It is certainly true that in the armies and navies of the world the surgical staff are still under a certain ban of social inequality in comparison with brother officers of the same rank and length of service. In England this is carried to such an extent that medical officers are systematically blackballed at military clubs. At the English court it is understood that officers having the title of Honorary Physician or Surgeon to the King, although the honor has been bestowed on them in recognition of especially meritorious service, are not invited to be present at court functions.

The medical profession may well steer clear, then, of any feelings of self-complacency in the matters of honors that have recently been conferred on colleagues. As a matter of fact honors usually come for personal services to royalty and in this it is well known that the rewards are never commensurate with the risks, as many a physician has found to his cost.

At the beginning of the last century Sir Richard Croft committed suicide because of the popular feeling against him. It was assumed on utterly inadequate grounds that he had not treated the Princess Charlotte of Wales as skilfully as he should. A distinguished German obstetrician of Berlin is said to have ruined his career and spoiled his chances of a Professorship in the German Universities because of the unavoidable accident that crippled for life at his birth the present Emperor of Germany. In our own time one distinguished Russian physician is said to have taken his own life because of the hue and cry among the Russian populace against him for not having saved the life of the late Russian Emperor. How high popular feeling ran in this matter can be judged from the fact that the house of an equally distinguished Russian colleague in Moscow was wrecked by the mob, and he narrowly escaped with his life. Here in the United States the physicians of wounded Presidents have learned well the bitter lesson how uneasy lies the head in attendance on patients in high position.

That honors and social rights and distinctions should come to the members of the medical profession is no more than right seeing that their services are not only so much in demand but so valued by those high in authority, and even the suspicion of failure is apt to be visited on them so severely.

As a matter of fact physicians the world over are doing more for the benefit of nations and peoples, we believe, than any other class of men and many of them are doing it without a thought of the reward. The medical profession, as has been well said, is the only class of men who are working effectively to limit the necessity for their own services.

It is to such benefactors that honors should come. At present honors are absorbed almost exclusively by two classes of the community—the military and the politicians. We have surely passed the intellectual stage when we are to be persuaded that only those who benefit a country by winning her battles, or by outwitting the diplomats of other countries, deserve to be honored. Peace hath her victories and the realization of this is coming to all men. In peace the medical sanitarians of our generation are saving as many lives now as the fighters sacrificed in former generations and are decreasing the great sum of human suffering by more than they increased it.

Perhaps the true realization of how valuable this work is will only come when medical men are closer to the ruling powers than at present. Our own Dr. Leonard Wood has shown how marvellously effective for good health and good government the combination of governor and physician may be. The present Queen of Portugal rejoices in the privilege of having by right the title doctor of medicine after her name. There is a Duke of Bavaria, a brother of the late Empress of Austria, who has done much good as a physician. Not long ago the London *Lancet* suggested that one of the three boys of the Prince of Wales should be reared as a physician and gave as its reason the fact that "the English medical profession has long merited acknowledgment and the finest acknowledgment would be the enrolment in their body of a prince of the blood." It would seem that juster views of medical merit than now obtain would thus become more disseminated, and there would be less reason for the complaint that the true value of their services and the responsibilities they assume is generally ignored. As physicians we cannot but rejoice at the better position in popular estimation and authoritative appreciation that the profession occupies, but we are not of the opinion that even as yet things are quite as they should be in this respect. It lies with ourselves to make them so.

"THE UNKINDEST CUT OF ALL."

That medicine should resolve itself into specialties has been a foregone conclusion, from the increase of knowledge in all branches and the enlargement of the field of investigation, and that the extension along these lines should be surgical, rather than medical, is only natural. The question now is, have we not already reached our limit of operative interference in most of the well-defined specialties, and is not the tide of professional feeling setting rather in favor of an armed neutrality, than to an appeal, in all cases, to the knife?

Certainly in ophthalmology the revulsion has been great, and the number of "advancements" rendered necessary in muscles that were ill-advisably cut for the cure of all neurotic conditions—from epilepsy to "eye-strain"—is growing steadily less, while the partial division and "stretching" of the recti muscles have been practically abandoned, even by the smaller number of its disciples whose enthusiasm was greater than their experience. So too, in otology, where the removal of the ossicles ran a brief and disastrous course, and where, too, the insertion of an eyelet in the thickened drum head seemed to promise a speedy relief to the deafness of middle ear trouble; a flattery that only served to soothe the dull, cold ear of death, in more cases than one, by the untoward falling inward of the mechanical device.

It is, however, in abdominal and pelvic surgery that the advance has been the most marked, for it is here, without question, that the greatest results have been attained. That hundreds of lives have been saved by a timely operation for appendicitis can not be denied, and yet it is also true that in many cases no disease of the appendix has been found when the abdomen has been opened, and that consequently these patients have been subjected to an operation that was unnecessary, even if the skill of the operator had been sharpened by practice to a degree sufficient to remove all risk of a fatal termination. So also with women and the ovaries; that their removal is often necessary to preserve life is a fact beyond doubt or cavil, and yet when we remember that the procedure must affect their nature and disposition, we can not but think that it is often undertaken too lightly and on insufficient ground. The time that has now elapsed since the more general introduction of the operation is sufficient to have demonstrated that it is often followed by a general coarsening of the whole organism—mental as well as physical—and though this may not be a general rule, yet there are few among us who have not in our own experience seen sufficient exceptions to prove that it is one.

But be this as it may, the fact still remains that the investigations of the present day—broad though they may be—are being pushed along a path so narrow that it seems that sooner or later they must converge and meet at a point where most diseases will be divided into two great classes—first those of the brain and nervous system, that are to be done away with by what the refractionist is pleased to term "the proper installation of glasses," and last, the sum total of all the ills that female flesh is heir to—which are to be cured—rather than endured—by oophorectomy, or the removal of the ovaries.

The most striking example of this latter is not only its suggestion, but the practical application of it for the cure of cancer of the breast. What possible relation there can be between the two it is hard to imagine, though that there is a nervous connection between them is a fact, the knowledge of which is not confined to the medical profession; but that the removal of the one will check the progress of the malignant growth in the other, seems apocryphal in the extreme. As early as 1896, Beatson exhibited two cases before the Edinburgh Medical Society that had been so operated on, one of whom, a year later, seemed to have recovered completely from an absolutely inoperable condition, but Butlin reviewing the literature of the subject comes to the conclusion that "there is little evidence to prove that oophorectomy can cure any woman of cancer of the breast."

In further support of this opinion we have only to quote from the recent paper of Paton (*British Medical Journal,* March 1, 1902), who reports two cases. The first of these was a woman of forty-three, who had been suffering from a tumor of the breast for three months, the entire region being infiltrated and the axillary glands involved. The breast was extirpated, but the growth recurred in the scar and ulcerated, and the other breast becoming involved, the ovaries were removed. The patient was put on thyroid extract and this was continued for some weeks, but the combined treatment had no apparent beneficial effect. The second case was of a woman of thirty-one years with extensive cancerous involvement of the breast and glands. All the affected tissue was removed and oophorectomy performed, but the disease reappeared and the patient died.

That there have been many cases reported in which there was supposed to be an amelioration of the conditions, and even cure, is true, but in putting our faith in statistics and the lessons which they teach, two things must be borne in mind. Cancer is a progressive trouble of the most pronounced kind, and yet even in its most malignant form it is subject to arrest of growth, and exceptionally to even spontaneous involution, and this without treatment of any sort; so that it is easy to credit this improvement to the effect of the operation or to the curative influence of the thyroid extract with which the patients have been saturated. Again, even with the best of motives, the most honest of observers naturally attach more importance to the success of any proposed line of treatment than they do to its failures—there being more joy for the one ewe lamb that has been apparently saved than sorrow for the ninety-and-nine that have fallen by the wayside. So that we can not help believing that were all the operations that have been done for this purpose reported and their results tabulated, it would be found that the weight of evidence against their efficiency would be overwhelming, and that the operation would be relegated from a present administration of strenuous activity to a previous one of innocuous desuetude.

ECHOES AND NEWS.

NEW YORK.

The Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York.—The Charity Organization Society's Committee on the Prevention of Tuberculosis needs not less than $10,000 to meet the expenses of the work which it has undertaken. Contributions made to the Society for its usual current operations should not be reduced and cannot be diverted in any large amount to the purposes of this Special Committee. The expenditures to be made by the Committee are for the following main objects: (I.) Research into the social—as distinct from the medical aspects of tuberculosis—for example, into the relations between the disease and over-crowding, infected tenements and unhealthy occupations, and also into the influence of improved diet and hygienic living upon recovery. (II.) *Education.* The publication of leaflets and pamphlets, the giving of lectures and the promulgation in every possible way of the fact that tuberculosis is a communicable and preventable disease; the widest distribution of the results of scientific research in this field, and of the results of modern treatment both in sanatoria and at home. (III.) The encouragement of movements for suitable public and private sanatoria both for advanced and for incipient cases; for adults and for children; for free care and also for the care of those who can pay moderate fees. (IV.) The relief of indigent consumptives by the provision of suitable food and medicines, by the payment of rent when this is necessary to secure adequate light and air, and by transportation and maintenance at a distance when in the judgment of the Committee this is essential; the labors of the Committee will be directed not only towards the amelioration of the condition of the large class of consumptives, but also towards the benefit of the community as a whole, in which there is encouraging reason to believe that tuberculosis may be practically eradicated. The work of the Committee is not intended to be a temporary matter, but its continuance and effectiveness will depend upon the public encouragement and support received. For research and publication the Committee can easily make use of the $10,000 asked for, and could employ a larger sum to good purpose. In the relief of special cases existing agencies will be asked to cooperate, but any funds which individuals may be willing to supply for this special purpose, will lessen the burden upon organizations which are already over-taxed by cases of need arising in large numbers from the class of consumptive poor.

Contributions should be sent to the Charity Organization Society, 105 East 22nd Street, New York City. The Committee consists of the following: Charles F. Cox, Chairman; Otto T. Bannard; Hermann M. Biggs, M.D.; Herbert S. Brown; Joseph D. Bryant, M.D.; Miss Ella Mabel Clark; Robert W. de Forest; Edward T. Devine; Homer Folks; Franklin H. Giddings; Henry Herbert, M.D.; J. H. Huddleston, M.D.; Robert Hunter; Walter B. James, M.D.; E. G. Janeway, M.D.; Miss A. B. Jennings; S. A. Knopf, M.D.; Alexander Lambert, M.D.; Ernst J. Lederle; Mrs. Frederic S. Lee; Egbert Le Fevre, M.D.; Henry P. Loomis, M.D.; Mrs. James E. Newcomb; Eugene A. Philbin; T. Mitchell Prudden, M.D.; Andrew H. Smith, M.D.; W. G. Thompson, M.D.; E. L. Trudeau, M.D.; R. C. W. Wadsworth; Miss Lillian D. Wald.

Mosquito Warfare in Flushing.—The example of the North Side Improvement Association of Long Island has fired the citizens of Flushing to declare war on the mosquito. A committee appointed by the association, of which Arthur H. Elliott, Ph.D., is chairman, has issued a circular, bearing on its cover a portrait of heroic size of the enemy, and dedicated to "The Mosquito Brigade." The circular modestly says: "It is not supposed that the committee will undertake to exterminate all the mosquitos on Long Island. It is proposed to deal with those around us. These we expect to materially reduce in numbers. We expect every good citizen to take care of his own premises and will gladly tell him how to do so."

PHILADELPHIA.

Hospital Trustees Appointed.—Governor Stone has appointed Dr. Joseph Thomas of Quakertown and Samuel L. Thompson of Philadelphia, members of the Board of Trustees of the Norristown Hospital for the Insane.

Historic School for Blind to be Dismantled.—The old school for the blind at Twentieth and Race streets is to be remodeled and converted into an orphan asylum, it having been purchased for the St. Vincent's Home for Infant Children. The blind were taught in the old building from 1836 to 1899, when the school was removed to Overbrook, where it occupies the most complete building ever erected for such a purpose. From 1851 to 1854 James G. Blaine was a teacher in the school. Among its famous graduates are David Wood, the organist, and Adam Gribel, the composer. Another noted graduate was David Longbery, who afterward founded the school for the blind at Baltimore.

Pennsylvania Delegates to National Prison Congress.—Among the Pennsylvanians appointed by Governor Stone to represent the State at the National Prison Congress to be held here September 13-17 are the following from Philadelphia: Arthur H. Love, Conrad B. Day, George Vaux, Alexander Balfour, James H. Gay and D. W. Bussinger.

Philadelphia Hospital Changes.—Chief Clerk Robert H. Smith has been appointed acting superintendent of the Philadelphia hospital in place of William M. Geary who is on leave of absence because of illness. It is said that Mr. Geary will soon resign the superintendency.

Historical Society at West Penn. Medical College.—An organization having for its primary object the study of the history of medicine and medical men, has been formed at the West Penn. Medical College, Pittsburg, with Dr. W. H. Ingram as president. Both teachers and students will be active members. The medical library of the University has been turned over to the use of the society as a nucleus for the large library which is projected. Meetings will be held bi-monthly.

Mayor Vetoes Hospital Site Bills.—Mayor Ashbridge is being commended by the press and people of the city for his vetoes of the Petty's Island and Cannonball Farm bills, the former location as a site for the almshouse and insane asylum and the latter for the proposed new municipal hospital. Petty's Island is objectionable because "there would be brought about the anomalous condition of a strictly municipal institution operated under police and sanitary regulation and laws of another jurisdiction. It is deemed unwise for the city of Philadelphia to locate buildings or institutions, the control and erection of which are not wholly within its own discretion." The bounds of the Cannonball Farm property are stated to be too vague and indefinite, and the character and location do not make it desirable for municipal hospital purposes. The latter question will be taken up again immediately when councils meet in October.

Smallpox in the State.—During the week ending July 26 only four new cases of smallpox were reported in this city, the smallest number in a similar period since the epidemic began nearly two years ago. All these cases were located in districts where great difficulty has been experienced in inducing the people, especially the foreign element, to submit to vaccination. In Pittsburg the disease is rapidly increasing, 269 cases having developed during the last two months. In addition to 150 patients in the pest house, forty-two houses are under quarantine. The vaccination order has been placed in force again. At Collingdale, near Philadelphia, two negro camp meetings were closed July 26 by the Board of Health, under authority of the State Board. Action against two other meetings in the same county is contemplated.

CHICAGO.

Tetanus at County Hospital.—Out of the thirty cases of tetanus that have been treated at the County Hospital during the last five years, all but two have proved fatal.

Appointment of Health Commissioner Reynolds.—Dr. Arthur R. Reynolds, Health Commissioner of Chicago, has been appointed a delegate to the Third International Sanitary Conference, to be held in Washington, D. C., October 15.

Appointment of Dr. E. J. Gardiner.—Dr. E. J. Gardiner has been appointed professor of ophthalmology in the Chicago Eye, Ear, Nose and Throat College.

Mid-summer Work in Tenement House Districts.—Less than a baker's dozen of physicians have responded to the appeal of the Health Commissioner for midsummer work in the tenement house districts. The need for this work threatens to be more urgent this year than for many previous years. The unusual weather conditions are playing havoc with infant and child-life. Last week there were one hundred deaths from acute intestinal diseases alone reported, 73 per cent. of which were among those under one year of age, as compared with only 59 during the previous week, and the total deaths under five years of age form nearly 38 per cent. of the total mortality.

Hospitals Well Equipped.—Final reports were received in the building department July 21, concerning the equipment of hospitals. Deputy Commissioner O'Shea said that all the hospitals, with the exception of the Alexian Brothers', needed fire protection, but that all this had been remedied. Every hospital has complied with the instructions of the building inspectors.

Smallpox.—A marked increase of smallpox in the territory surrounding Chicago is noted, and five new cases were discovered in the city during the week, three of these being imported from beyond the city limits.

Arrest of a Dr. Miller.—Dr. Orlando E. Miller, who has just been arrested at the instance of the State Board of Health, on a charge of practising medicine without a license, was the proprietor of the St. Luke Sanatarium, in which ten men were recently burned to death. He has had a varied career, in which he has figured as an editor, a grocer, a patent medicine man, and a president of a branch Y. M. C. A. Dr. Miller is noted for his highly religious tendencies, and his activity as a psalm-singing revivalist.

CANADA.

Consumption Sanatorium Closed.—The Highfield Consumption Sanatorium, which has been conducted at Moore Park on the northern confines of the city of Toronto by Dr. Edward Playter, has been ordered closed by the local board of health. The residents of the district did not like the presence of consumptives in their midst.

New Brunswick Medical Society.—The twenty-second annual meeting of the New Brunswick Medical Society was held at St. John on July 15 and 16. Amongst others who contributed papers were: Drs. A. B. Atherton, Fredericton; C. R. Shaughnessy, Laughlin, Milton and McLaren of St. John; C. M. Campbell, Halifax, and Lawson of St. Stephen.

Medical Society of Nova Scotia.—The thirty-fourth annual meeting of the Medical Society of Nova Scotia was held at New Glasgow on July 2 and 3, under the presidency of Dr. John W. McKay of New Glasgow. Next year the society will meet at Antigonish. The following were the officers elected: President, Dr. J. J. Cameron, Antigonish; 1st vice-president, Dr. W. G. Putnam, Yarmouth; 2nd vice-president, Dr. M. Chisholm, Halifax; secretary-treasurer, Dr. Huntley McDonald, Antigonish.

The Maritime Medical Association.—This Association held its twelfth annual meeting at Charlottetown, P. E. I., on July 9 and 10. Dr. W. B. Geikie, Dean of Trinity Medical College, Toronto, was present and delivered an address on simplicity in treatment. Dr. H. D. Hamilton, Montreal, and Dr. Stoddart, Pueblo, Colorado, were also present, and contributed papers. The following were the officers elected: President, Dr. Murray McLaren, St. John, N. B.; vice-president for P. E. I., Dr. P. C. Murphy, Tignish; vice-president for Nova Scotia, Dr. G. M. Campbell, Halifax; vice-president for New Brunswick, Dr. R. L. Botsford, Moncton; secretary, Dr. T. D. Walker, St. John; treasurer, Dr. C. A. McPhail, Summerside, P. E. I.

Infantile Mortality in Montreal.—During the week ending July 19 there were no less than 108 deaths among infants in Montreal. This was a larger percentage than for the previous week. The total number of deaths during that week was 167. Of this number 151 were Catholics, eleven Protestants and five Hebrews. The Medical Health Officer points out that in order to reduce the number of deaths among infants, the privy pits in the city will have to be reduced.

Prominent Doctor Killed.—Dr. J. H. Horsey, Owen Sound, Ontario, Liberal Member of the Dominion House of Commons, was almost instantly killed on the afternoon of July 23, in the Owen Sound Cement Works, through the bursting of a fly wheel. Dr. Horsey was a graduate of Queen's University and took a deep interest in the welfare of that institution.

Lunatics in the Dominion.—A bulletin issued from the Census Department at Ottawa on July 26, states that there are 16,495 of unsound mind in the Dominion of Canada. Of this number 13,929 are males and the balance females. There are in addition, 6,174 deaf and dumb and 3,279 blind. Ten years ago the record was 13,355 of unsound mind and 4,819 deaf and dumb, and blind 3,368. Of the 25,948 infirm persons, 5,269 have been so afflicted since childhood.

Ontario Medical College for Women.—The past session at this institution has been a very successful one. There were eight members of the graduating class and five of these have secured hospital appointments in American hospitals, as follows: Dr. Emma Connor is at the Women's Hospital, Philadelphia; Dr. Elizabeth McMaster and Dr. Isabella Thomson are at the West Philadelphia Hospital for Women; Dr. Isabella Wood is at the New England Hospital for Women and Children, Boston, Mass.; Dr. Lazelle Anderson is at the Children's Hospital, Staten Island, New York.

Doctors Elected to the Ontario Legislature.—By the recent elections held in Ontario the following members of the profession have secured seats in the Legislature: Dr. J. A. Reaume, to represent North Essex; Dr. David Jamieson, South Grey; Dr. E. Jessop, Lincoln; Dr. F. S. Snider, North Norfolk; Dr. W. A. Willoughby, East Northumberland; Dr. R. A. Pyne, Registrar of the Ontario College of Physicians and Surgeons, East Toronto; Dr. Beattie Nesbitt, formerly editor of the Dominion Medical Monthly, North Toronto; Dr. H. G. Lackner, North Waterloo; Dr. G. A. Routledge, East Middlesex; Dr. S. Bridgland, Muskoka; Dr. M. James, East Nipissing, and Dr. M. Currie, Prince Edward County.

Personals.—Dr. J. A. Roberts has returned to Toronto from the South African battlefields. Dr. Arthman A. Bruere has resigned the chair of physiology in Bishop's Medical College, Montreal. Dr. W. G. Turner has been appointed superintendent of the Montreal

Western Hospital, replacing Dr. von Eberts. Drs. Wright, Graham and Waters have been appointed on the house staff of the Sick Children's Hospital, Toronto. Dr. R. F. Ruttan has been appointed professor of chemistry at McGill University. Dr. O. W. Colbeck, late of the Western Hospital (Toronto) house staff, has been appointed house physician to the Mount Airy Sanatarium for Children, Baltimore, Md. Dr. E. R. Secord of Brantford, Ont., who has been in England and Italy some months for the benefit of his health, has returned to resume practice. He has been elected a Fellow of the Edinburgh Obstetrical Society. Dr. J. L. Todd of McGill, will proceed to Senegambia to study the animal parasite trypanosoma and its connection with disease in human beings. He is being sent out by the Liverpool School of Tropical Medicine and is to be associated with Dr. J. E. Dutton of that school.

GENERAL.

British Medical Association.—The seventieth annual meeting of this association took place in Manchester, July 29, 30, 31 and Aug. 1. The meeting was an exceptionally successful one and many papers of interest and importance were read. The opening addresses of the President and of the Chairman of the Section on Tropical Diseases are presented in this week's issue of the MEDICAL NEWS.

Vaccination in Turkey.—A royal edict has been issued, by virtue of which, vaccination is rendered obligatory throughout the empire of Turkey.

The Sleeping Sickness.—A commission has been sent from London to Uganda for the scientific study of this disease. The commission is composed of Drs. G. C. Low and C. Cristy, who will investigate the condition from the parasitic standpoint, and Dr. Castellani, who will study the malady from the bacteriological side. The disease has killed 40,000 people in Busoga; and in the district of Kragone 400 deaths in two months and 2,000 in six months have been recorded.

Cholera Steadily Increases in the Philippines.—Latest reports received from the chief quarantine officer for the Philippines, show plainly that up to the time of writing little progress had been made against the ravages of cholera. In some of the villages, he says, one-tenth of the entire population have died from cholera. The report for Manila from May 25 to June 7, inclusive, shows a startling number of fatalities, larger in proportion even than in the provinces for the same period. During these two weeks there were reported 132 cases and 118 deaths. In the provincial towns for the same period there were 1,108 cases and 722 deaths. In Manila during these two weeks four Americans were attacked by the disease, but no fatalities were reported.

An Aged Practitioner.—Dr. Harry Helfrich of Altoona, Pa., celebrated his ninety-ninth birthday on July 26. He is the oldest resident of Lehigh county and the oldest physician in active practice in Pennsylvania. He no longer visits patients, but he still has considerable office practice.

Physicians and Leprosy.—The Board of Health of Honolulu, which recently removed Dr. Oliver, resident physician at the leper settlement, has received application from forty physicians living in many States of the Union for the place made vacant. All are anxious to study leprosy. Prof. Clarence A. Good of Michigan University is likely to be appointed, he having been previously invited to come here.

A New Medical Journal.—We have received the first number of the Old Dominion Journal of Medicine and Surgery. It is the official organ of the Alumni Society of the Medical College of Virginia and will draw its clinical material from the City Dispensary and the largest hospital between Baltimore and New Orleans. We have as active cooperators the teaching force and Alumni of the thirteenth oldest medical school in the United States.

The Ozark Sanatorium.—Owing to the recent death of his father, Dr. J. T. Jelks of Hot Springs, Arkansas, Dr. F. W. Jelks will leave St. Louis and take up his father's work at the Ozark Sanatorium.

American Association of Obstetricians and Gynecologists.—This Association will hold its fifteenth annual meeting in the Convention Hall of the Hotel Raleigh, Washington, D.C., Tuesday, Wednesday and Thursday, September 16, 17 and 18, 1902, under the presidency of Dr. Edwin Ricketts, of Cincinnati. The following-named papers have been offered: President's address, Edwin Ricketts, Cincinnati. Normal saline solutions during abdominal operations, Wm. H. Humiston, Cleveland. Further notes on ovarian transplantation, Robert T. Morris, New York. Surgery of the ileocecal valve, N. Stone Scott, Cleveland. Ice following abdominal sections, Frank F. Simpson, Pittsburg. Etiology and prophylaxis of traumatism of the female pelvic tract following labor, E. J. Ill, Newark. Pelvic disease in the unmarried, C. L. Bonifield, Cincinnati. Report of a few cases of operation for peritoneal tuberculosis with remarks, Rufus B. Hall, Cincinnati. Suppression of urine as a post-operative condition, T. J. Crofford, Memphis. Occipito-posterior positions, J. M. Duff, Pittsburg. Intestinal anastomosis, J. A. Lyons, Chicago. Retained placenta due to uterine fibroids, with cases, M. A. Tate, Cincinnati. Hydramnion with report of a case, E. F. Fish, Milwaukee. (*a*) Personal experiences in the use of the angiotribe; (*b*) Two fatal cases of tetanus, following abdominal section, Walter B. Dorsett, St. Louis. A second contribution to the treatment of gastric ulcer, Henry Howitt, Guelph. Hemorrhagic cysto-sarcomata of the ovary; their infectious character, J. B. Murphy, Chicago. General consideration of drainage in abdominal and pelvic surgery, Joseph Price, Philadelphia. Surgical relations that the appendix region or zone bear to pelvic suppuration and operative complications, Joseph Price, Philadelphia. Infantile intestinal diverticula, Joel W. Hyde, Brooklyn. Myomectomy vs. hysterectomy, C. C. Frederick, Buffalo. Anterior transplantation of the round ligaments for uterine displacements, A. H. Ferguson, Chicago. The cases of peritonitis which recover after operation, Wm. E. B. Davis, Birmingham. Dystocia following ventrofixation of the uterus, William H. Wenning, Cincinnati. Surgery of the ureters, C. R. Dudley, St. Louis. Curetage in streptococcus infection of the uterus, D. Tod Gilliam, Columbus. A new operation for displaced kidney with report of cases, Charles A. L. Reed, Cincinnati. Cancer of the large intestines with special reference to Mikulicz's method of resection, M. Stamm, Fremont, O. A short review of the advances made in intestinal surgery, James F. W. Ross, Toronto. Ectopic pregnancy, H. D. Ingraham, Buffalo. Unusual cases of appendicitis, Miles F. Porter, Fort Wayne. Pelvic abscess and its treatment, H. E. Hayd, Buffalo. Ruptured pus tubes, Charles G. Cumston, Boston. Title to be announced, H. O. Pantzer, Indianapolis. Gastrectomy with report of two cases, A. Vander Veer, Albany. Four cases illustrating the difficulties of diagnosticating appendicitis, William Wotkyns Seymour, Troy. The vaginal route for operations on the uterus and appendages, with cases, Jos. H. Branham, Baltimore. The management of cases of emergency arising from rupture in ectopic pregnancy, A. P. Clarke, Cambridge. Some unsettled questions in the surgery of the appendix, John Young Brown, Jr., St. Louis. Deciduoma malignum, with report of a case, L. S. McMurtry, Louisville. Relationship of the colon to abdominal tumors, James F. Baldwin, Columbus. Some problems in exploratory laparotomy, Walter B. Chase, New York. Extirpation of the gall-bladder, through the lumbar incision; with report of a case, W. P. Manton, Detroit.

CORRESPONDENCE.

OUR BERLIN LETTER.

Berlin, June 15, 1902.

ACADEMY OF SCIENCE EXPOSITION—THE EXHIBITS—THE LECTURES—DOYEN AND HIS KINEMATOGRAPH—VIRCHOW'S HEALTH AND RESIGNATION—ELECTION OF WALDEYER—DEMENTIA PARALYTICA.

A unique and novel exposition, the first of its kind, is closing its doors to-day. It was held in the Royal Academy of Sciences and all appliances of medical instruction have been exhibited. Originally only to be open for one week, the interest shown was such that the time was extended eight days and it is acknowledged that the exposition was a complete success, which no doubt will lead to improvement in different branches of medical teaching.

The president of the society is Prof. v. Bergmann, the secretary Dr. R. Kuttner, who was given the title of "Professor" in recognition of his efficient work. This elevation gave a well-known medical author an opportunity for the somewhat caustic remark that now all sorts of professors are in existence in Germany, viz: University, Gymnasium, Music, and finally now Exposition professors. Kutner, however, is not without merit; he has always been especially interested in cystoscopic work and was the first, in 1891, to photograph the inside of the human bladder. The exposition was arranged in six different groups: (1) Anatomical and pathological model preparations; (2) Phantoms and plastic models; (3) Tables and Charts, including Photography and Radiography; (4) Microscopy in all its branches; (5) Apparatus for Demonstration; (6) Projection Apparatus.

In addition lectures were provided for on eight consecutive nights by the following eminent men: (1) Prof. v. Bergmann upon the means of medical instruction; (2) Prof. Doyen of Paris (France) upon the development of surgical technic and methods; (3) Prof. Jolly upon the pathology of brain and spinal diseases; (4) Prof. v. Leyden, demonstrations of diseases of the heart; (5) Prof. Wassermann upon Bacteriology and Serumtherapy; (6) Prof. Liebreich, Pharmacology; (7) Prof. v. Michel, Tuberculosis of the Eye; (8) Prof. Olshausen, Diseases of Women and Obstetrics.

A feature was the lecture of Prof. Doyen, who used the kinematograph to show five capital operations, which were performed by him almost without assistance in one and one-half hours. Among these were the opening of the skull and removal of a cerebral tumor; an amputation of the thigh; a laparotomy, etc.

It might here be mentioned that Doyen, as a rule, in cranial operation, divided these in two parts. He trephines one day, closes the opening by suturing the skin and waits five days for the further work. He claims that he has much less loss of blood and better results.

In the first group of exhibits, the different branch institutes of the Berlin University, Allsaints Hospital of Breslau and a number of specialists were represented. The immense progress which the technic of preservation of anatomical and pathological specimens has made, culminating in the Kaiserling method, which enables one to give anatomical preparations an almost fresh appearance, through retaining their natural color, was demonstrated. The improvement was splendidly seen in exhibited specimens from the Pathological Institute representing: Amyloid degeneration of the liver, intestine with typhoid fever ulcers, liver with cancerous metastases and atrophy of the spleen.

In Group II. were shown plastic models, which form now an important factor in medical instruction. They give the teacher a chance to demonstrate all phases of the different diseases in an almost natural picture. As material principally wax is used, but papier-mâché and plaster of Paris are also frequently employed. Diseases of the skin, eyes, nose and throat among others are well represented in this chromo-plastic exhibit.

In Group III. were shown graphic demonstrations in woodcut, copper engraving, etching and lithography. Especially to be mentioned were tables of the psychiatric and neurological clinic of Prof. Jolly and charts of the topography of nervous and systematised Dermatoses of Dr. Blaschko. Interesting were also the plates of Dr. Engel representing the microscopical composition of the blood in the different forms of leucocytosis, leucemia and anemia, and stained with triacid, eosin-methylene blue, respectively.

In Group IV. the progress of microscopical technic and microscopy was demonstrated, with a special exhibit of bacteriology and serumtherapy. The last thirty years has given to the scientist the Abbe condensor and the oil immersion, without which many conditions, which are recognized now, would have been yet a sealed book.

Dr. Rosin, Prof. Senator's first assistant, exhibits here new dye methods. (1) Demonstration of Nissl's granula with neutral red; (2) demonstration of lipochroms of nerve-cells with sudan and osmium and others.

In Group V. phonographs used to demonstrate defects of speech, especially stammering, were exhibited; also Roentgen apparatus, skiascopes, demonstration ophthalmoscopes, etc.

The last group dealt with the development of the projection apparatus. It showed the original magic lantern as invented by the Jesuit, Kirchner, in the middle of the seventeenth century, which was improved in 1840 by Petzval by his portrait objective; then came the change in illuminating material, oil was superseded by calcium light, acetylene and electric light and in connection with Edison's kinematograph, not only objects and drawings or photographs are truthfully shown, but moving pictures likewise.

Prof. Rudolf Virchow has left Tiplitz and is sojourning at Harzburg, an elevated but quiet summer resort. He could walk a short distance from the railroad without any support excepting his cane.

Some weeks ago, Virchow resigned as first president of the Berlin Medical Society, and probably through the influence of Prof. v. Bergmann, who had been first vice-president, but received Virchow's place, Prof. Waldeyer was elected for the vacancy. This has given rise to some adverse criticism, inasmuch as many members claim, a chairman of a medical society ought to be a clinician, not a teacher of anatomy. Waldeyer, when the question of contributing to the medical chambers came to him, refused or showed his unwillingness, claiming that he was not a practitioner.

At the Hufeland Medical Society (one of the oldest Berlin societies), Prof. Mendel, the alienist, delivered a few days ago a lecture entitled, "Our Present Knowledge of Dementia Paralytica." Mendel spoke about the connection between paresis and lues. In 1879 he pointed this out, but he then found no friends to support his view. About the exact pathology many things are obscure yet, but he explains the pathological changes in the brain through minute alterations of the blood vessels, through which endosmosis and exosmosis are somewhat prevented, hence the brain substance is not properly nourished and degenerations must follow. He mentioned that the symptoms of dementia paralytica had somewhat changed. While formerly monomanie du grandeur et de la richesse was an almost permanent symptom, at present the dementia came more into the foreground. Women are much more frequently attacked than formerly; twenty years ago one woman came statistically to eight men, now the ratio is about one female against three males. The children resulting from paralytic marriages, born before the outbreak of the malady, showed imbecility as a rule, and sometimes depraved instincts. As to the prognosis his views are not hopeful. He says he has seen one case, which might be considered cured. It is that of an attorney at law who became paralytic and was first sent to a sanatorium and afterwards to an insane asylum, where the diagnosis was confirmed. To-day he is practising law again and is very busy and successful. In most of the cases, which are published as cured, they are back at the asylum again before the printer's ink, recording their cure, has become dry.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

DIAGNOSIS OF TYPHOID FEVER AND TYPHOID INFECTED WATER BY MEANS OF GELOSE—DANGERS OF CHLOROFORMISATION—PUBIC SUBLUXATION AND RUPTURE OF THE URETHRA—DIAGNOSIS OF GANGRENOUS APPENDICITIS—LIGATURE OF THE INFERIOR VENA CAVA WITH RECOVERY—HEMOLYTIC PROPERTIES OF HUMAN SERUM—NEPHROTOXINS—ACTION OF CONTINUOUS CURRENTS UPON THE SMALL INTESTINE—SUBLIMATE, AND FORMOL AS PARASITICIDES OF THE ECHINOCOCCUS—CORRECTION OF KERATOCONUS—VACCINATION AGAINST THE VARIOUS PASTEURELLOSES—COLOR REACTION OF THE BLOOD-CELLS IN DIABETES—OCULO-PUPILLARY SYNDROME IN TUBERCULOSIS OF THE APICES OF THE LUNGS.

THE French scientific societies during May and June were occupied with the consideration of various topics of practical importance, of which the following series have been chosen for the attention of our readers:

CHANTEMESSE at the Académie de Médecine May 20, 1902, read a paper on the diagnosis of typhoid fever and of typhoid infected waters by means of gelose, recalling the fact that in 1901 he had described a rapid method of research and diagnosis of the typhoid bacillus in suspected fluid and in the clothing of beds and patients, the essential elements of which are to obtain on carbolized gelatine superficial colonies, to cultivate them on a medium of lactose and litmus and to recognize them by their characteristic agglutination.

The three steps of this process he has simplified by combining the lactose and the litmus with the carbolic gelatine. The formula consists of adding to 10 c.c. of ordinary gelatine (peptonized water 3 per cent. strength to which 2 per cent. of gelatine has been added) .4 gelatine. The formula consists of adding to 10 cc. of lactose and 1.00 cc. of sensitive litmus tincture. The whole is then liquefied on a water-bath and poured upon Petri dishes in very thin films (not more than 1 to 2 millimeters in depth). Five or six dishes are then inoculated by stroking them with a very fine hog-bristle dipped once into a solution of the fecal dejections from the patient. After about twelve hours in the oven, the thin pink films will show numerous colonies, many of them red (bacillus coli communis) and others bluish (bacillus typhosus). The latter can be verified by the agglutination test. He has been able by this brief and simple procedure to recognize the bacillus wherever he has examined for them in the feces of typhoid patients. Moreover he maintains that he has found it a very easy and direct route to the clinical diagnosis of enteric fever. Suspected waters can be examined by causing a large quantity to pass through a good filter and then using the porcelain jar as the source of germs for the test.

HUCHARD referred to the paper of Laborde, read at the preceding meeting on the dangers of chloroform, especially the claim that combinations of morphine, sparteine and atropine are of service in making the anesthesia easier and safer. Atropine is the physiological antagonist of morphine, but it is by no means certain that it behaves in this manner therapeutically. Therefore it is well to bear these points in mind and to employ it with judgment and care.

MIGNON, at the Société de Chirurgie, May 14, 1902, read a paper on subluxation of the pubis and rupture of the membranous urethra. His patient was a cavalryman who had fallen with his horse and noted hematuria a short time afterward. Mignon made a diagnosis of urethral rupture secondary to a fracture of the pelvis and passed a retention catheter. The following day he observed an infiltration of the prevesical space and determined to explore for rupture of the bladder also. At this operation he found no lesion of the bladder, a pubic subluxation instead of a pelvic fracture and a complete laceration of the membranous urethra. He then carried out retrograde catheterism for drainage of the bladder, but made no attempt to suture the urethra because the inferior end was so much retracted. A perineal section was done to facilitate cleanliness of the wound. Recovery was finally complete, but several slight complications had to be overcome by various minor interventions.

WALTHER discussed a case bearing upon the importance and the difficulties of diagnosis of gangrenous appendicitis. The child showed only one distinct local symptom, namely, tenderness at McBurney's point. There were no signs of any exudate, yet at the operation an entirely gangrenous viscus was found. The patient died of sepsis shortly after. Unfortunately the present knowledge of the bacteriology of appendicitis will not permit of the definite estimate of the degree and virulence of this disease. In this patient the diagnosis was early and the operation promptly done, but the undetermined element of the potency of the bacterial infection destroyed life.

HOUZEL (Boulogne-sur-Mer) read notes on a case of ligature of the inferior vena cava followed by recovery. The woman was thirty-six years old, had undergone operation for a pyonephrosis which did not entirely relieve her from the cachexia secondary to the purulent process. A nephrectomy was then undertaken. The perinephritic adhesions were so numerous and so firm that the inferior vena cava was torn through for a distance of a centimeter or more. The rapid flow of blood and the feeble general condition of the patient made lateral suture of the wound impossible. Two circular ligatures were therefore passed about the vessel, one above and the other below the wound. The patient recovered promptly, suffered only from edema of the lower extremities for a while and one year after the operation was entirely well.

J. GAMUS and **PAGNIEZ** at the Société de Biologie, May 17, 1902, discussed the hemolytic action of human blood-serum upon the blood of rabbits, especially with reference to the relation of such effects to the degree and kind of leucocytosis present. They found that the number of white blood cells present bears a direct ratio to the activity of the hemolysis. In three instances, however, the phenomenon was absent, although polyneuclear leucocytes were abundant. Mononuclear leucocytes were almost entirely absent or very feebly increased in number. They are, according to Metchnikoff, the source of macrocytosis. On the other hand in studying the effect of human blood serum in twenty-four cases upon normal human blood cells, the authors found thirteen examples of hemolysis due to it. This abnormal effect of the serum appeared due to no influence whatever of the white cells. Moreover this hemolysis which disappears at a temperature of 56° C. seems to depend entirely upon the occurrence or presence of an iso-sensibilisatrice. One may consequently conceive that in conditions which are accompanied by a destruction of blood cells like chlorosis, cancer, etc., there circulates through the organism a globulicide which is not retained in the liver or excreted by the kidneys.

Castaigne and Rathery have been investigating the matter of kidney toxins. They have been able to produce lesions of the convoluted tubules in the kidneys of rabbits, by injecting into them an emulsion of kidney substance or of nephrotoxins. The injection of the kidney substance of a guinea pig determines a very abundant albuminuria and then the death of the animal. Histologically there is a protoplasmic cytolysis of very delicate characters. The same phenomena follow, if one injects into a rabbit the emulsion of one of its own kidneys removed by nephrectomy, or the serum of another rabbit which has been poisoned by the same procedure of autonephrotoxin injection, and if injections into a guinea pig be done with the serum of a rabbit poisoned by emulsions of guinea-pig kidney-substance. The symptoms caused are a progressive emaciation, albuminuria, and finally death.

Laquerrière and Delherm have been studying the effects of the continuous currents upon the small intestine independently of the points to which the electrodes are applied. Immediately after opening the abdomen one sees a great activity of the small bowel, but it is impossible to state whether this is due to an electrization of the smooth muscle fibers which may be in the direct circuit, or to the reflex nervous action. When the intestine does not show any spontaneous activity, continuous currents, whether the gut is inter- or extrapolar, do not appear to excite any other than feeble contractions. If the intestines are agglutinated, strictures and local spasms will appear. If the coils are in contact one coil acts as an electrode to the others. With currents of greater intensity than 20 milliampères movements occur which do not depend at all upon the sites at which the electrodes are placed, but they are not all as distinct as those under faradisation. Finally it appears that galvanism is without much effect upon the longitudinal muscle-bundles.

Dévé communicated the results of experiments on the parasiticide action of sublimate and formol on the echinococcus. He found that $^1/_{1000}$ solutions of the sublimate and $^5/_{1000}$ solutions of formol will destroy the germ in two or three minutes. This fact has the practical application that secondary infections with the echinococcus can be avoided by aspirating the large cysts, then injecting them with either of these germicides and finally evacuating and ablating them after the injection has been in them five minutes.

J. Janssen at the Académie des Sciences, May 20, 1902, read a contribution discussing the various visual conditions which are susceptible of treatment in keratoconus. The cornea in keratoconus may be considered a normal cornea upon whose normal spherical curve there has been added a segment of a sphere whose posterior surface is opposed to the curve of the cornea and whose anterior surface is so curved as to make a true cone with its apex spherically rounded off or forming a parabola. Hence in order to correct the secondary visual errors it is only necessary to place before the eye a glass which will totally compensate for the error of this imaginary superimposed spheroid. Theoretically it is necessary to use a circular lens whose posterior surface is a spherical surface of the same radius of curvature as the normal cornea and whose anterior surface is of the same radius of curvature as that of the superimposed segment of a sphere. Practically, however, it is simpler and equally efficacious to use lenses concave on the front and convex on the back, but both truly spherical surfaces.

J. and M. Lignières read notes on the efficacy of vaccination as a means of imposing complete or partial immunity against the group of diseases among animals conveniently distinguished as pasteurelloses and comprising a large numer of hemorrhagic septicemias: typhoid fever in horses, and young dogs, hen-cholera, hemorrhagic septicemia in sheep, kine and swine, etc. The method of preparing this vaccine consists in attenuating the virulence of the germ and making it vegetate on gelatin-agar for one year with reinoculations every two days, then transplanting it upon peptonized bouillon which is raised for two or three days to a temperature of 42° to 43° C. The most important point is that of selecting the vaccine. Is it necessary to produce a virus for each form of pasteurella, or is it possible to produce a polyvalent virus? It was to this second problem that the two doctors directed their attention and produced a virus made up of those of six different forms of pasteurella, namely, of those of sheep, kine, dogs, horses, hogs and poultry. This virus must be injected in doses ranging from 0.125 to 1 cc. according to the weight of the animal. The immunity which it confers lasts about a year.

J. Le Goff has ascertained that the blood-cells of diabetic patients possess the quality of staining with basic aniline dyes, while those of normal subjects have a predilection for the acid colors. He has recently been interested in explaining this phenomenon. For this purpose, after studying the chromatic features of pure hemoglobin and of that various combined with hydrates of carbon, he made up a hyperglycerinic blood by adding glucose to a normal physiological serum. In this manner he was able to change the characters of the blood-cells so that they would take basic rather than acid dyes precisely like the blood of diabetic patients. It seems, therefore, permissible to assume that in diabetes there exists some kind of combination between the hemoglobin and the glucose.

Souques, at the Société des Hôpitaux, May 23, 1902, read notes of his observations upon three patients who had pulmonary apical tuberculosis and presented an oculo-pupillary syndrome consisting of myosis, decrease of the palpebral fissure and a diminution and retraction of the globe of the eyeball. No focal cause of these phenomena could be elicited and the author is of the opinion that there is a relation of cause and effect between the apical tuberculosis and the eye signs. These latter are due to a destruction of the irido-dilator fibers of the sympathetic nerve or of the fibers of communication between this and the first dorsal nerve, which pass directly in contact with the cul-de-sac of the apical pleura and would be readily involved and destroyed by the pachypleuritis which is inevitably present in tuberculosis of the apices. Such nervous lesions might cause this cycle of oculo-pupillary symptoms.

Appointment of Oculists in Public Schools.—Superintendent Maxwell is inclined to consider Commissioner Lederle's statistics regarding contagious eye diseases overdrawn and is opposed to the appointment of consulting ophthalmologists.

SPECIAL ARTICLE.

THE DYNAMICS OF LIVING MATTER.

The General Chemical Character of Life Phenomena.—On March 18, 1902, at Columbia University, Dr. Jacques Loeb of the University of Chicago delivered a lecture with the above title as the first of a series on The Dynamics of Living Matter. He stated that his intention was to present a number of facts which may enable us to exercise a certain amount of control over life phenomena. The reason why the latter can not be initiated in the chemical laboratory is because chemists have hitherto employed only processes involving high temperatures, strong acids, etc. We now use appliances the worth of which chemists are just beginning to realize, namely, catalytic agents which, without participating in the chemical reaction, give rise to it. These agents work at the low temperature of the body, and are in some cases enzymes which can be extracted from the body-cells by water, showing that the catalytic power is not connected with the inherited side of living matter, which latter is closely bound up in the structure of the cells. One characteristic of a higher intelligence is that cells store up nourishment in times of abundance. How can forces accomplish such a result? The solution of this problem is not idealistic but physicochemical. Two years ago it was discovered that enzymes have a reversible action; cells take and store up fat, which, during periods of malnutrition, is drawn upon by the body, the absorption being brought about by the enzyme lipase, which can split up fat. Lipase is able to bring about a synthesis of fats. When lipase is added to fat in the intestine, the fat is split up, but its digestion is not finished. It is absorbed by the cells and here the lipase causes a synthesis of the two elements, bringing about a chemical equilibrium between the alcohol and the butyric acid. In time of want the lipase in the cells breaks up the fat. Castle and Loevenhart found that all cells contain lipase, and it is this which compels them to act with apparent intelligence. The disunited elements of fat must diffuse from the blood or lymph into the cells, in which they cannot exist as butyric acid and alcohol, but must be synthesized into fat. Lipase accelerates this action. It is said that the animal instinct of storing food in summer is analogous to this action in the cells, but the analogy is a dangerous one.

How are the physiological oxidations at low temperature brought about? The answer is, by the specific catalytic agencies in cells. It seems very probable that these catalytic substances are peroxides, capable of taking up and binding oxygen, which also they are capable of easily giving off. Schmiedeberg found that these oxidations are purely physicochemical phenomena in no way connected with the structure of cells. The watery extract of cells is capable of bringing about the same oxidations as the cells themselves. These catalytic agents are known as oxidases. They are not true proteids, but nucleoproteids; they are contained in the nuclei of the cells, which proves that the nuclei are the main respiratory organs of living matter. Recently it has been found that the oxidases are most energetic at the periphery of the nucleus. There is one type of cells without nuclei, red blood-cells; but these contain substances resembling nucleoproteids, which proves the rule. Hemoglobin is able to combine and give up oxygen. Green cells contain chlorophyll, a similar substance. Analogous processes involving the action of oxidases are to be found in the formation of pigment in the wings of butterflies, and in malignant tumors. The formation of black pigment is due to an oxidase, known as tyrosinase. In the intestine the enzyme trypsin forms amido-acids, of which tyrosin is one, and hexose bases. In the cells the same action takes place. When the cells are starved, a process of self-digestion takes place, under the influence of trypsin, and one of the products formed is tyrosin. Tyrosinase completes this action with the formation of black pigment.

There are questions suggested by other chemicophysical phenomena, as, What rôle does oxygen play in our life history? Without oxygen we die quickly; although in the lower animals the heart may keep on beating for a long time after the death of the animal, in human beings the heart stops beating almost instantly. The ordinary explanation would be that oxygen is necessary to supply energy to the heart. Fries found this insufficient, for oxygen plays an altogether different biological rôle. In experiments he found that in the absence of oxygen the heart of *Fantulus* beats for many hours, but that of *Penolampus* stops in a few minutes. When this experiment is performed in the two- and four-celled stages of germ life, in the absence of oxygen the germ of *Penolampus* is reduced to a homogeneous mass, while that of *Fantulus* is not changed. Thus the absence of oxygen kills, not because it fails to provide energy, but because the machine itself is annihilated. This was confirmed by Pasteur. The catalytic agencies in cells vary easily on account of outside influences. If the production of chemical energy be the ultimate end, why are vital phenomena not uniform? The number of enzymes is limited, but their action is extremely sensitive to outside conditions which vary their effectiveness. Pasteur found that when we add yeast to sugar solution, in the absence of oxygen we get powerful fermentation. In the presence of oxygen fermentation is extremely limited. The transformation of sugar is due to a specific enzyme, zymase, acting best in the absence of oxygen; with oxygen the zymase forms, not alcohol and carbon dioxide, but other substances, such as cellulose. Pasteur showed two types of life phenomena, one with oxygen and one without it. Zymase has been discovered in plant cells. In muscle a similar fermentative process takes place. When muscles work in the absence of oxygen, there are formed sugar and lactic acid and alcohol. In the presence of oxygen there are formed no lactic acid or sugar, but enormous growth occurs.

These facts are important in the field of immunity, according to Pasteur. The blood of a rabbit injected into a guinea-pig does not at first affect the blood-corpuscles; if the injection be continued, the red blood-cells of the guinea-pig will be killed through enzymes in the blood of the rabbit; at first these could not act, but repeated injection induced a condition whereby they became active. Thus the action of enzymes may be varied by outside conditions. Enzymes which do not exist normally may be created. There are critical points in the development of the organism, when one enzyme is made active and another inactive. Since activity and inactivity of enzymes depend on outside circumstances, it may be possible to exercise a certain amount of control over life phenomena. We need not despair of ultimate physicochemical analysis of living phenomena. The term catalytic agent covers much; there is no reason why we should call hydrogen peroxide an enzyme. There are catalytic agents which have to do only with the physical structure of cells, being concerned with colloidal substances, water in which minute particles of matter are held in suspension.

The General Physical Constitution of Living Matter.—To accomplish some control over enzymes, to learn how to handle them and introduce them into cells, to check the action of some and to favor the action of others, two ways are open, *viz*, physicochemical analysis and imitation of Nature's process. The former method was first investigated by Pasteur, who described the connection between the chemical configuration of molecules and the action of ferments; he discovered that the ease with which left-handed tartaric acid undergoes fermentation is attributable to the geometrical shape of its molecule. This conception of stereochemistry was taken up by Emil Fisher, who found that differences in the fermentation of various sugars is dependent upon the chemical configuration of molecules, and that all proteids have a nucleus of carbohydrates endowed with a definite geometrical shape. Fermentation is possible only when the ferment molecule fits exactly into the fermentable molecule. Possibly this generalization is very limited, because the polysaccharides, which seem fermentable, cannot be fermented by zymase without first experiencing the action of another ferment; thus too much cannot be founded on stereochemistry in elucidating the enzymotic processes of life. In the effort to imitate Nature's processes, according to the former method, many facts have been discovered. Pavy found that the process which is typical of life phenomena, viz., the transformation of alcohol into acetic acid, can be accomplished by finely-divided platinum. The bacteria of putrefaction can transform calcium formate into calcium carbonate and hydrogen; this change can also be accomplished by platinum in fine division, which has even the same power as lipase—that of splitting fats. The action of both lipase and platinum can be annihilated by potassium cyanide. One may thus imitate the most secret life phenomena at the temperature of the body, without the use of acid or alkali.

It has long been observed in cases of poisoning by potassium cyanide that the blood in the veins is perfectly arterial, although the proximate cause of death is suffocation. This is because the cyanide prevents the tissues from taking up oxygen. Living matter and finely-divided platina are both colloidal solutions. Part of our living matter must be liquid and subject to the same forces that are at work in maintaining platinum in a state of fine suspension. These forces are electrical charges carried by the particles, which all have the same charge and hence repel each other so they are not thrown down. When the charges are removed the particles remain no longer in solution, but are coagulated.

According to the recent theory of Aurelius, electrolytes such as sodium, potassium, etc., when in watery solution, exist not in their molecular form, but as particles bearing positive and negative charges. The electrolytes also have the power in certain cases of transforming hydrosols into hydrogels, and the coagulating effect of electrolytes increases with the valency or electrical charge of the anion. Pavy observed that white of egg acts as do solutions of the metals; if a trace of acid be added, the white of egg travels to the positive pole, where it gives up its negative charges and is precipitated; if an alkali be added precipitation occurs at the negative pole. Since life depends on the maintenance of the liquid condition of protoplasm, everything that coagulates protoplasm brings life to an end. The chief forces that maintain this liquid condition are electrical charges; but all life's phenomena cannot be explained from the standpoint of electricity. Heat also plays an important rôle. Moreover, part of protoplasm is solid. The remainder is in colloidal or in true solution. Nucleohiston, which is in true solution, may be ionized and behaves in the same manner as do colloidal solutions. In coagulation a definite structure occurs which varies with the nature of the substance, with the agent causing coagulation, and with the tension. As far as the dynamics of living substance are concerned, attention should be paid exclusively to the liquid part of protoplasm, to the so-called hydrosols.

Protoplasmic Motion, Muscular Contraction and Cell Division.—The first attempt to give a clear idea of how heat can bring about muscular contraction was made by Engelman in the theory that the essential parts of the muscle are solids, in direct contradiction to results recently obtained—living matter must remain liquid. Observation on striped muscle shows the presence of anisotropic substance, *i.e.*, that with double refraction. Engelman experimented on violin-string, which is such a substance, and found that, when it is suspended in water with a weight attached to its lower end and with a platinum coil wound around it, the elevation of the temperature of the water by means of the platinum coil causes the string to imbibe water and to become shorter and broader, analogous to changes in the anisotropic substance in muscle, caused by elevations of temperature at certain points in the muscle and the imbibition of water. The assumption, however, that at certain points in the muscle the temperature undergoes elevation is untenable, because it is impossible to assume that in frequently contracting muscles (one-hundred times per second, as in the wings of insects) the anisotropic substance gets heated and cooled off with equal rapidity. Engelman saw that it would be necessary to apply his theory to the motions of ameba, that the sending out of pseudopodia would have to be attributed to rises of temperature and to imbibition of water. This application was supported by the discovery in ameba of traces of doubly-refracting substance. There was the difficulty of the streaming of protoplasm in the pseudopodia as incompatible with the structure necessary for the manifestation of life, the liquid condition. Hartman assumed that the very streaming of the protoplasm explains the phenomenon of double refraction, for Mach had shown that the latter can be produced in liquids of a high degree of viscosity under stress which would be furnished by the two opposing currents in highly viscid protoplasm. Many other attempts have been made by other physiologists to explain the contraction of muscle on the basis of other forces characteristic of liquids.

As one of these theories has shown how increase in surface tension causes contraction of muscle, it now remains to show how chemical energy is transformed into surface energy. This may be direct, the stimulus giving rise to chemical changes with the production of substances which would in some way cause increase in surface tension; or the transformation may be indirect, chemical changes giving rise to electrical ones and the latter resulting in increase of surface tension. The latter theory was first advanced by Lipman, who realized that stimulation of a muscle by a nerve may be electrical in character. The chemical processes in the muscle would result in the production of electrically charged ions; lactic acid is produced and probably other ions are formed. D'Arsonval realized that perhaps the negative variation had something to do with the increase of surface tension. If two liquids, such as mercury and a mixture of sulphuric acid and water, be placed in contact in a jar, the ions of the former will have a negative charge and those of the latter will have a positive charge. The fact that the particles at the surface of the mercury all have a negative charge would make them all repel one another. Surface tension is due to the opposite, the contraction of the particles on the surface. If the charges in the surface particles be removed, the particles approach one another and the surface tension becomes maximum. What is the cause of ameboid movements? Direct observation shows a streaming of liquids. Engelman admitted that the streaming is a transitory phenomenon. The rotation of protoplasm can be seen in plant cells. Quinque tried to explain ameboid movement by means of the following experiment: If a drop of oil be placed on the surface of water exposed to air, it is subjected to the action of three kinds of surface tension, namely, that between the oil and water, that between the oil and air, and that between the water and air. The drop of oil will be pushed along in the direction of greatest surface tension, that between the water and air. The adjacent particles of water are carried along with it. Quinque assumed that the same process occurs in cells. He took oil, soap solution and protoplasm; the surface tension is greatest between the protoplasm and oil. The oil is present in all cells and so are fatty acids, which in the presence of alkalies form soaps. The soap dissolves and spreads out, taking the neighboring protoplasm with it. The taking up of food is an application of the laws of surface tension. Wilson has shown that the directive forces of cell division are those of liquids. It appears that the spindle occupies the long axis of the protoplasmic mass, which is the position of equilibrium of the streaming masses.

The Effects of Ions upon Various Life Phenomena.—In considering how best to control life phenomena, the easiest way seems to introduce enzymes into the cells. This is not practicable because enzymes, having the character of colloidal solutions, share the property of the latter in being unable to permeate animal membranes. All attempts to bring about fertilization of eggs by enzymes have failed. We can, however, introduce into the cells substances that can control the action of the enzymes. Some enzymes act better in the presence of hydrogen ions. Hydrocyanic acid retards the action of many. The addition of a slight amount of acid to sea-water retards the development of eggs; some hydroxyl ions favor their development.

The second group of chemical phenomena showing the control of life processes includes narcotics. Narcotics belong to the fatty-acid series, the aromatic series, and the alkaloids. They are all soluble in fat. All cells contain the fats lecithin and cholesterin as regular constituents. Hansmeyer found that the narcotic power of a substance contained in one of these categories is parallel with the degree of its solubility in fat. All narcotics are soluble in water as well; but there is no relationship between this solubility and their narcotic power.

The greatest narcotic effect is produced in tissues containing the greatest amount of lecithin and cholesterin, *viz.*, in the ganglion cells of the central nervous system. One can only conclude that the action of narcotics is a physical phenomenon.

These facts are certainly of morphological and pathological importance. The same narcotic that paralyzes protoplasmic motion does more if applied in greater concentration; it destroys or liquefies the cells. This is the case with red blood-cells. The interest connected with this makes it apparent that those constituents that determine the form of cells are built up to a great extent of lipoids. This is suggestive pathologically, for it directs our attention to all those substances besides narcotics that dissolve cells to determine whether these act on the lipoids.

Can we hope by narcotics to control life phenomena? This is to a degree possible. There are two stages in the action of narcotics: to a slight degree they may modify lipoids and favor activity; to a greater degree they go further, modify the lipoids in a different way and destroy activity. The group of compounds that act more powerfully than these are the electrolytes, which share with the narcotics the power of penetrating into cells. There is one fundamental fact concerning the electrolytes which appears from experiments, *viz.*, wherever we have one kind in solution, it leads to suspension of life; if we add another, it leads to prolongation of life. Osmosis would appear to modify the effects of the electrolytes. There are, however, a number of organisms which, within wide limits, do not depend on the osmotic pressure of the fluids in which they are immersed. "Paramecium" is one of these. The eggs of *Fantulus,* a marine fish, contain sodium chloride, but they develop just as well in distilled water as in sea-water. At first sight it would appear that the eggs of *Fantulus* in distilled water would absorb large quantities of water, which they do not. This would lead us to suppose that the membrane of *Fantulus* is impermeable, which is wrong, for the same eggs are eeremely sensitive to the constitution of the sea-water. The reason why they do not lose all the salts they contain in distilled water is because salts and ions may diffuse into them, yet cannot diffuse out of their protoplasm. A similar phenomenon is observed in muscles, which contain an enormous amount of potassium; in solution this would kill, as potassium ions are extremely poisonous; it must then be in another form. When a muscle dies the potassium diffuses out; when the muscle lives it does not.

When we put eggs of *Fantulus* immediately after fertilization into a ⅝-normal-salt solution they cannot form embryos. If we add a trace of calcium chloride all the eggs form embryos. We might conclude that calcium is a necessary stimulus of fertilization, that it starts the phenomena of fertilization. This is not the case, for the same eggs develop in distilled water. We can really say that sodium chloride in the same concentration as it exists in sea-water so alters the constitution of cells as to interfere with the production of energy, thus preventing the manifestations of life. A small amount of calcium acts anitoxically on the sodium chloride. Other metals share the same power with calcium, as all are bivalent. From these facts one may generalize that bivalent cations in small doses counteract the effect of sodium chloride. If we take trivalent ions, they, too, act antitoxically, but a still smaller proportion of these is necessary to bring about antitoxic effects. In the case of all salts, such as the citrates, oxalates, etc., in which anions have a higher valency, no effect is observed. We are led to understand that a solution to which an animal is adapted can become poisonous if the balance of its constituents be disturbed. Sea-water is the natural habitat for certain organisms. Our blood is a physically balanced solution for our red blood-cells. When we eliminate from sea-water its calcium, we destroy the balance, and the water becomes toxic.

If this conception be correct, it must be of importance in the case of the phenomena of the central nervous system. It is a fact that a disturbance in the proportion of ions produces phenomena of irritability not observed in normal tissue. By means of certain electrolytes the equilibrium of the constituents of muscle is destroyed and its irritability is changed. The same occurs with muscle as with the eggs of marine fauna; if a muscle is put into a ⅛-normal-salt solution, it dies quickly; but if a trace of calcium or zinc be added, its life is prolonged. Muscle is a good representative of living matter, as its surrounding fluids must have a certain balance for the preservation of normal irritability. If we put a muscle into a solution which precipitates calcium, the muscle will remain quiet. Take the muscle out of the solution and it displays a phenomenon that is never seen in normal muscle, powerful contraction.

The nature of this change is that when the muscle has been immersed in any one of these solutions, the slightest change in contact is capable of producing loss of equilibrium, with a consequent change in the irritability of the muscle. Substances that ordinarily have no effect on a muscle have an effect when the equilibrium of the muscle is slightly disturbed.

The points of attack in attempts at the prolongation of life are the heart-beat and the respiration. Ostwald has pointed out that from the very character of life phenomena it is necessary for a certain equilibrium to be present, requiring a regulatory mechanism. Life is possible only in the presence of the regulatory mechanism, the function of which is to prevent excess, as well as to promote activity in protoplasm. This regulation must lead to rhythmical phenomena. When the heart-muscle contracts, the inhibitory mechanism is aroused; the continuance of this causes the heart to stop; then the excitatory activity gains the upper hand and the heart contracts again. In the case of native striated muscle, under normal conditions it is at rest only when the solutions of electrolytes are normally balanced. If the equilibrium of the electrolytes be destroyed, the muscle will contract rhythmically. An example of this is the jellyfish, which, deprived of its central nervous system, will not contract, but if put into sea-water will beat rhythmically.

The Effect of Temperature on Life Phenomena.—At 40 to 50° C. almost all life ceases on account of the clumping of the colloidal particles. A few organisms can live at a higher temperature, as certain algæ in hot springs exist at a temperature of 60 to 70° C. It would be an interesting line of research to discover if these organisms contain protoplasm, the coagulation temperature of which is higher; a second line to ascertain if those organisms that die at a comparatively low temperature can be acclimated to a higher; if this be true, it should be of importance in medicine in the field of immunity. The intensity or velocity of life processes increases with the rise in temperature up to a certain point, above which the effect is to cause a decrease in the velocity of life phenomena. In some cases in the lower organisms the decrease of temperature causes an increase in the velocity of life processes. The metamorphosis of butterflies is increased when the chrysalis is exposed to cold. The lowering of temperature increases the irritability of frogs. A certain equilibrium is necessary for life phenomena, in the case of temperature as well as in the case of the electrolytes. If the temperature be suddenly lowered, the action of all the enzymes is influenced, but in a varying degree; the enzymes are inhibited unequally, their balance is disturbed and some of them are enabled to work without hindrance.

The Effects of the Galvanic Current upon Life Phenomena.—Animals have no sense-organ to perceive electrical changes in the environment. Galvanism is the most universal, convenient and familiar form of stimulation. In our body the current can be conducted only by the liquids, and is carried either by the ions or by the colloidal particles in solution. These particles have definite charges, and the alterations of life phenomena are attributable to various influences affecting the migration of the ions, the loss of their charges at one pole and chemical changes which they undergo. When the particles lose their charges coagulation occurs. What is the origin of these electrical charges? It has recently been discovered in Ostwald's laboratory that if a powdered substance be placed on a disk of platinum and then blown off, an electrical charge remains on the surface of the platinum. This charge varies with the character of the substance used. Dry acids impart a positive charge and the hydroxyls a negative charge. Salts give no charge. A film of liquid is formed between the powder and the platinum disk; in this liquid there occurs a solution of the electrolytes. If one of the ions has a greater velocity than another, it settles first on the platinum and charges it accordingly with its own kind of electricity. It seems as if the charges of the colloid particles are due to the same causes. Bradish says that the particles that go to the anode carry negative charges. If a metal such as gold be placed in water, a small amount of the gold goes into solution, not in the form of metallic gold, but in the form of ionic gold. It may be assumed that the particles of gold combine with positive electrons, and leave on the non-dissolved gold an equal amount of negative ions. All the effects are due to electrolytes in solution. The phenomena of anelectrotonus and cathelectrotonus are brought about by the migration of the ions. When a galvanic current is applied to a muscle or to a nerve, the migration of the cations of sodium, potassium, calcium, magnesium and histon occurs in the direction of the negative pole where they gather. The effect of the current is to deprive these ions of their electrical charges, and they become atoms, which become hydrates, causing chemical changes in the nerve and resulting in increase in irritability. The ions cause chemical changes with the production of acid and the decrease of irritability at the positive pole. To sum up, the effects of the galvanic current are due to the gathering of ions, probably of colloidal particles, at one pole. The effects of electrical waves on living matter are not due to the oscillatory character of the electricity, but to the contact effects of the current. Electrical waves have no physiological effect. We are shielded against them by the bodily liquids and the integuments. It would be well to warn physicians against the so-called cures produced by electric waves. How does electricity kill? It was observed by Hermann that when a current is sent through the blood the red blood-corpuscles are all dissolved in the course of time; this is a true heat effect. A slight rise of temperature can liquefy lipoids. In death by lightning heat plays a rôle, for lightning causes a liquefaction of the lipoids in the ganglion cells. Electricity, while it is the most universal stimulus, is also the least effective. Biologists and physicians may expect little for the near future, at least as far as the therapeutic effects of electricity are concerned.

The Effects of Light and Heliotropism.—The ether waves are liable to produce maximum effects when the body they meet acts as a resonator. The smaller light rays may be expected to affect or set up sympathetic motions in bodies which act as resonators. The colloidal particles of protoplasm may act as these resonators. Concentrated blue and violet light, which consists of waves of higher refraction, has been used to destroy tumors. The question is, How can these light waves act? There is no cell which at some period of its activity is not sensitive to light. The biological effects of light are familiarly observed in plants and in the lower organisms. The hydroid "eudendrium" when put into an aquarium suffers the loss of its polyps; these afterward regenerate, and regeneration is a function of the amount of light; in the dark the polyps do not regenerate. The effect on the polyps is produced chiefly by blue and violet light; behind red glass the polyps do not regenerate. It is through the agency of pigment cells that radiant energy is transformed into other kinds of energy, which process is a sort of natural color photography. Light can act only when it is absorbed. In a field of light waves the streams of energy travel along straight lines. The majority of organisms have symmetrical parts; hence points that are symmetrical with respect to the rays of light are similarly affected by the latter. What happens when light strikes an organism on only one side? In the case of plants the stem turns toward the light; and in a section of the stem the protoplasm is denser on the side of the light. In the roots of plants the opposite condition is found. What does this difference in density signify? Can the bending of the protoplasmic structure toward the light be associated with its greater viscidity? Probably, for it is an interesting fact that in the same organ or plant there are two different kinds of protoplasm, one that becomes more dense and one that becomes less dense under appropriate stimulation by light.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Seventieth Annual Meeting, Held at Manchester, July 29, 30, 31, Aug. 1, 1902.

President's Address.—Dr. Walter Whitehead opened the meeting and spoke of Manchester's early influence on the advancement of medicine and of medical education. He said: My first duty is to thank my fellow members of the British Medical Association who have chosen me to fill the honorable office of President, and have thus afforded me the opportunity of welcoming them to the city of Manchester at this, the seventieth annual meeting of the Association, the largest voluntary medical society in the world. In extending to all our visitors a hearty welcome, I speak not only in the name of the members of the association resident in Manchester and the district around, but also of the citizens of Manchester, who are represented here to-night by their chief magistrate, the Right Honorable the Lord Mayor, and who join with us in hoping that your visit to our city may be both useful and pleasant.

The Last Meeting of the British Medical Association at Manchester.—When the British Medical Association last held its annual meeting in Manchester, just twenty-five years ago, the medical school had only recently been amalgamated with the Owens College, of which it has ever since been one of the most important departments. The college, which celebrated its jubilee a few years ago, owes its success as much to the breadth of view and wise foresight of its founder as to his noble generosity. This day, July 29th, is the fifty-sixth anniversary of the death of John Owens, and I ask you to join with me in praising the memory of one who was among the first in this country to show an appreciation of the fact, now so widely recognized, that the prosperity of a community, as of a nation, must have for one of its foundation stones a true respect for learning and intellectual inquiry, and an ardent desire to place the advantages of education within the reach of all who are capable of profiting by them.

Dr. Whitehead then referred to those who had died since that meeting, speaking of Dr. Eason Wilkinson, Sir William Roberts, Edward Lund, S. M. Bradley, Leech, John Thorburn and others.

The Annual Meeting, 1902.—In mapping out the scientific work of the meeting, which begins to-day, we have found it necessary to arrange for a very large number of sections. This has appeared advisable, partly because we hope that this meeting may prove a record in point of numbers, and partly because our study is one of growing complexity. Moreover, Manchester is the centre of probably the largest manufacturing district in the world, and the occasion has been taken to establish a special section for the discussion of subjects relating to industrial hygiene and diseases of occupation. Not only so, but, by the kindness of many of the leaders of industry in the district, opportunities will be afforded to those who may wish to do so, to inspect many of our most important manufactories, to note the conditions under which the work is carried on, and to observe the means which have been devised to guard against accident and to protect the work people from injury to health. Manchester physicians and manufacturers were, as I shall have occasion to show, among the pioneers of this department of preventive medicine, if I may so style it, and I do not think that they are lagging behind now. The arrangements which have been made by the presidents and officers of the other sections show that many opportunities will be afforded for the discussion of those subjects in all departments of the science and art of medicine which are most interesting to us at the present day. I hope that much of permanent benefit will flow from these debates, for, as the late Sir William Jenner, in his address as President of the Section of Medicine at the last meeting of the Association in Manchester, said with great force and truth: "The circulation of ideas is as necessary for intellectual and scientific life and growth as is the circulation of blood for physical life and growth. The ideas of others is the seed for new ideas in ourselves—we give, we receive, and new ideas are begotten; a third, differing from its parents, is the outcome of the two. The new ideas thus created open out wider fields for research and fresh methods of testing the value of the produce of research. As men talk one with another, new modes are discovered of looking at old things—prejudices fade away—identity of fact and meaning are found to underlie differences in words; and, by comparing their own observations and their own conclusions with those of others, they correct the former and rectify the latter."

Charles White and the Royal Infirmary.—Of the institutions for the benefit of the people which came into being at this epoch, let me speak first of the Royal Infirmary, on account not only of its intrinsic importance—it was at once a general hospital, an isolation hospital for infectious diseases, and a hospital for lunatics—but also because it played, indirectly, a great part in the intellectual activity of the city. Moreover, it is probably the oldest of our public institutions, for it had its first beginning just a century and a half ago, when Charles White, with the financial assistance of Joseph Bancroft, a man "conspicuous for his public and private charities," hired and fitted up a small house in Garden Street, off Shude Hill, now a wilderness of warehouses. It would seem that it only required the stimulus supplied by Charles White's enthusiasm to convince the leading inhabitants of the then small but growing town of the need of a hospital, for within a couple of months of this modest beginning a conference was held and a committee appointed to collect money. Their first step was to purchase from Sir Oswald Mosley, the lord of the manor, the "Daub Hole Field," a site of a little over an acre, and it is on this field and some adjoining land acquired subsequently that the infirmary still stands. A west wing forming the first part of the infirmary buildings was taken into use in 1755, and provided beds for forty patients. Ten years later a wing was added for the reception of patients suffering from mental diseases. At that time only three such institutions existed in the country, the hospitals of Bethlehem and St. Luke in London, and the institution at Newcastle-on-Tyne. The patients in the lunacy block of the infirmary were placed under the supervision of the physicians to the infirmary, and this arrangement continued until 1847, when, partly to provide more beds for the infirmary proper, and partly because the building was found to be out of date, the mental cases were removed to the Manchester Royal Lunatic Hospital at Cheadle, now under the able direction of Dr. Mould, the lecturer on mental diseases in the Owens College. In 1796, another addition was made to the infirmary by the erection of a separate building in the infirmary grounds to receive patients suffering from infectious fevers; this also was officered by the physicians to the infirmary, but as I shall have to refer to it again it will suffice to say that the arrangement continued until 1870, when a special infectious disease hospital was erected at Monsall. For a time the city authorities defrayed the cost of patients for whom they were responsible, but eventually purchased the hospital, which now provides, in detached blocks, accommodation for 400 patients, who are under the charge of the medical officer of health and his colleagues. As a consequence of these and other changes the accommodation provided by the infirmary proper was steadily increased, until it now contains beds for 292 patients, while its capacity is indirectly increased by the convalescent home at Cheadle, which accommodates 136 convalescents, and by further provision for the reception of such patients in institutions at Southport and Buxton.

From its earliest days the infirmary has rendered great services to Manchester and the surrounding district, and to the progress of medical and surgical science.

Mr. Crossley's Gift to the Manchester and Salford Hospital for Consumption.—If I may be allowed to include Salford and Ancoats as parts of greater Manchester, then I must add a few words as to the two other general hospitals, the Salford Royal Hospital and the Ancoats Hospital. The first had its origin in 1827, and the corner stone of a portion of the present building was laid in 1830, though it was not until 1845 that 10 beds were provided for in-patients. It was gradually enlarged until it contained 62 beds in 1882, in which year the late Mr. John Pendlebury bequeathed a sum of money which enabled the governors to increase the number of beds to 127. The Ancoats Hospital grew out of a dispensary for out and home patients founded in 1828 in the interests of the working classes then becoming concentrated in the district, and with the view of relieving the pressure upon the infirmary. A large part in this movement was taken by the late Sir James Kay-Shuttleworth. He had settled in Manchester as a physician in 1827, and early turned his attention to public health questions, though he found time to publish in 1834 a treatise on the physiology, pathology, and treatment of asphyxia, which won for him the Fothergillian medal of the Royal Humane Society. The Ardwick and Ancoats Dispensary grew into a general hospital, the first stone of which was laid in 1871. A new pavilion, the gift of Mr. James Jardine, raising the number of beds to 114, was opened in 1888, by the then Prince of Wales, now King Edward VII, whose rapid recovery from a serious illness under the skilful treatment of my friend, Sir Frederick Treves, may justly be reckoned among the triumphs of modern surgery.

Thanks to the epoch-making discovery of Koch, we now know that consumption is a preventable disease; subsequent investigations of this master of experimental pathology, and of many other skilful workers, among whom I would mention as one of the most original and successful, Dr. Sheridan Delépine, Procter Professor of Pathology in this College, have placed us in possession of facts which show us the nature of the methods by which the scourge may be diminished, and perchance in time extinguished. Chief among these is the prevention of the infection of healthy persons. The open-air treatment of consumption takes the sufferer in the early stage of his illness, places him under conditions of life which have been proved to favor his cure, and thus gratifies the generous pity which impels us to help the sufferer, and enables us at the same time to fulfil the duty which we owe to the community to prevent others from contracting the disease. In order to place this system of treatment within reach of the poorer citizens of Manchester and Salford, Mr. Crossley is building, on a site comprising sixty-six acres at Birch Hill, in Delamere Forest, 420 feet above sea level, a sanatorium where eighty sufferers from consumption will find every means for their recovery which experience can devise or generosity provide. The erection and equipment of the sanatorium will cost the donor some £70,000. The best way in which the people of Manchester can show their gratitude to him is to respond freely to the appeal which the Lord Mayor has made for subscriptions to a fund for the endowment of the institution which Mr. Crossley's public-spirited munificence has provided.

Manchester Medical Schools.—In Manchester, as in other communities full of active life, the development of the medical school was not along one continuous path. The work of many men, sometimes along paths apparently divergent, was necessary; but, as in every process of organic evolution, there were times of rapid accretion with succeeding periods of absorption, leaving an organism fit for steady and sturdy growth. Amidst all the struggles and rivalries, which extended over nearly half a century, there was evolved a school of which Manchester may well be proud, and the true value of which to the community will rise as the union between the college on the one hand and the infirmary on the other becomes more intimate. So far as medical education is concerned, these two institutions must be regarded as one, with common interests and joint duties towards the community in and for which they work; for of the science and art of medicine it may truly be said that it is nothing if not practical, and that in all his active work the practitioner of the art must be guided by a kind of sublimated common-sense.

We owe, I believe, the first beginnings of a medical school in Manchester to Charles White, the founder of the infirmary, for in 1786, assisted by his son, he began a course of lectures on anatomy and physiology, while Thomas Henry gave a course of lectures on chemistry concurrently. Henry, who had become a visiting apothecary to the infirmary in 1778, was one of the founders of the chemical industry in this district. The son of an Antrim man, who had settled as a schoolmaster at Wrexham, he first practised as an apothecary at Knutsford. After a few years he removed to Manchester, where he continued his medical practice; but he had already become deeply interested in practical chemistry, and in 1771 communicated to the Royal College of Physicians of London an improved method of making magnesia alba. Acting on the advice of his friends, he began the manufacture of this substance, whence he got the name of "Magnesia Henry," and this business was most successful. He was one of the founders of the short-lived College of Arts and Science, and lectured there not only on theoretical chemistry, but also on such technical subjects as bleaching, dyeing, and calico printing. He was an authority especially on dyeing, and also wrote on ferments, and on the value of lime and marl as manures. He was a friend of Priestley, and translated the physical and chemical essays of Lavoisier, with whom, and with other foreign investigators, he had been brought into correspondence by his experiments on fixed air (he observed that carbonic acid gas, so far from being injurious, was actually beneficial to plants). He wrote a memoir of Haller, whose career is sketched in the volume entitled "Some of the Apostles of Physiology," in which my friend Professor Stir-ling has given an account of the lives and labors of those who have contributed to the advancement of the healing art as well as to the prevention of disease. He was one of the founders and the first secretary of the Literary and Philosophical Society. Later he became its president, and held that office at the time of his death in 1816. His son, who was physician to the infirmary, was a friend of Davy and Wolaston, and a chemist of considerable eminence. He was the author of the earliest textbook of experimental chemistry, and more than a century ago lectured on the application of chemistry to arts and manufactures. When coal gas was introduced as an illuminant he was among the first to study its constitution, to lay down rules for analysis, and to indicate the means by which it might be purified. I may here digress to observe that Mr. John Leigh, the first Medical Officer of Health for Manchester, before his appointment to that office in 1868, had given much attention to the subject of the analysis of illuminating gas, and as early as 1842 communicated to the British Association, which met that year in Manchester, an account of the mode of preparation of nitro-benzole, a discovery turned to good account by those who shortly afterwards founded the aniline dye industry.

I do not know whether these lectures given at the infirmary by the Whites and Henry were largely attended. I suspect not, for regular pupils were admitted to the practice of the infirmary for the first time in 1793. Lectures, indeed, do not seem to have been given systematically, though in 1796 Mr. Benjamin Gibson commenced a course, illustrated by demonstrations of the specimens collected by Charles White, then preserved in a museum at the corner of King street and Cross street, the site of the present Reference Library.

Gibson gave special attention to diseases of the eye, and wrote on the formation of an artificial pupil, on the extraction of soft cataracts, and on the use of the couching needle in infants of a few months old, an operation in which he appears to have been very expert. It makes us realize the benefits which anesthetics have conferred on mankind to be told that "when Mr. Gibson operated upon the eyes of young children they were really put into a sac that had an eyelet, with a cord through it, which was fastened round the child's neck, and by this means the youngsters were much more easily controlled by the assistants."

John Jordan's School of Anatomy.—Dr. Ferriar, Dr. Roget, Mr. Ainsworth, and Mr. Ransome, the father of Dr. Arthur Ransome, whose early work in Manchester in connection with the prevention of tuberculosis is happily continued with increasing effect to the present day, also took part in the courses given at the infirmary, but we must, I think, assign to Mr. Jordan the honor of being the real father of the Manchester Medical School. In 1814 Joseph Jordan commenced the systematic teaching of practical anatomy in Manchester. He was assisted by Dr. Hull, Physician to the Lying-in Hospital and a botanist of distinction, and by Mr. Brigham. It was the day of small things, and Jordan and his colleagues began their school with four students. The course was practical from the first. As this was in the days before the Anatomy Act, the acquisition of subjects for dissection must sometimes have been a difficulty. But whatever his difficulties Jordan overcame them, and in 1817 his certificates of instruction in anatomy were recognized by the Society of Apothecaries of London. Jordan was an enthusiastic anatomist, and it is related of him that a medical friend who called upon him once when he was ill espied a set of bones under the bed which Jordan said he found it convenient to keep at hand that he might distract himself by their study. Where Jordan's pupils first dissected I am not certain, but the earliest references I have traced place the school in Back Queen Street, off Deansgate, nor am I aware whether courses in other subjects of a medical education were given there.

Thomas Turner and the Royal Manchester School of Medicine and Surgery.—Manchester, however, was not to wait long for a complete medical school; its foundation was due to the energy of Mr. Thomas Turner, a remarkable man, who during his life of eighty-two years accomplished a great work for medical education. He was born at Truro in Cornwall in 1793, was apprenticed in Bristol, was a pupil of Sir Astley Cooper at the old Borough Hospitals of Guy's and St. Thomas, and came to Manchester in 1817 as house surgeon to the infirmary. He afterwards settled in private practice in Manchester, and in 1822 gave a course of lectures on human anatomy, physiology, and pathology before the Manchester Literary and Philosophical Society. Encouraged by the interest shown in these lectures he put forth, two years later, a scheme for a school of medicine and surgery. It was started in a house in Pine Street, and John Dalton, one of the most illustrious names in the intellectual history of Manchester, gave the lectures on pharmaceutical chemistry. The enterprise was immediately successful, and in the following year the staff was thoroughly organized.

Dr. Whitehead then spoke of other medical schools in Manchester and gave the history of the movement that led to the foundation of Owens College.

The foundation of John Owens, broad in its conception, though small in its beginnings, has grown with the growth of Manchester, and with the increased love of knowledge and learning, until it is now one of the greatest educational institutions in the country. It has erected a fine pile of buildings containing halls and lecture rooms, libraries and laboratories, where instruction may be obtained in every department of knowledge, and, more than that, where opportunities are afforded to those who show aptitude for original inquiry to search out fresh secrets from Nature, and to apply the new knowledge thus gained for the benefit and elevation of mankind.

For 30 years the medical students of Manchester have had the advantages of receiving in its lecture rooms, but still more in its laboratories, the training in those ancillary sciences which they must study before they can enter with profit upon their special technical education, and also in those fundamental departments of the body of medical knowledge so happily termed in the Scottish Universities the Institutes of Medicine. Within its walls, by the kindness of the College Council, rooms have been provided for all the 17 sections, while the general meetings are held in this beautiful Whitworth Hall, which commemorates the name of one of the most munificent benefactors of the College.

The medical faculty has steadily grown in number and importance since it first formed part of the Owens College. In 1872-73, when the amalgamation took place, the medical students constituted 28.45 of all those studying within the College. In 1883-84 the proportion rose (excluding the women's department) to 40.8 per cent., and in the last two years to over 42 per cent.

Some Medical Heroes.—He then gave an interesting résumé of the lives of Thomas Percival and John Ferriar, and presented an outline of the history of sanitation in the city of Manchester.

Conclusion.—From a very early date in the history of the British Medical Association the medical profession in and around Manchester has taken a deep interest in its welfare and development. At the first anniversary meeting in 1832, Dr. Charles Henry, of Manchester, a grandson of Thomas Henry, surnamed

"Magnesia," was one of the committee instructed to report on the chemistry of animal fluids as illustrative of pathology; Mr. Thomas Turner was a member of a committee on anatomy, while Dr., afterwards Sir James, Bardsley was appointed corresponding secretary for France.

The British Medical Association was founded in 1831, and in 1835 the fourth anniversary meeting was held in Manchester under the presidency of Dr. Edward Holme, F.R.S., who had long held the office of physician to the Royal Infirmary. This meeting, the first held in Manchester, was memorable in the history of the Association as that at which the system of Branch organization took origin by the amalgamation with the parent association of the Easter Provincial Medical and Surgical Association, which became the East Anglian Branch. Later in the same year other Branches were formed at Wells, Bath, and Southampton, and in the following year the Lancashire and Cheshire Branch came into existence at Newton-le-Willows. Manchester thus saw the first great extension of the local organization of the British Medical Association, and this year it sees another great step towards the perfecting of that organization. Burke called representation "the cure for all evils in the colonies." May it have a similar influence in our Association. The serious business of securing the right kind of representation will be the only difficulty you will have to contend with. I trust that the results will be to make the Association stronger, larger, and more influential than ever.

The Association held its annual meeting again in Manchester in 1854, when Mr. William Wilson, Surgeon to the Royal Infirmary, and well known for his important contributions to obstetrics and gynecology, presided. The membership had grown to over 2,000, and an important proposal, marking a further stage in the development of the Association was made. This was that the title should be changed from the Provincial Medical and Surgical Association, which it had hitherto borne, to that of the British Medical and Surgical Association. This change of name betokened an extension of the Association's work to embrace all British practitioners of medicine. Finally, after a good deal of discussion, the familiar title of the British Medical Association was chosen, and formally adopted in 1856. Under that name it has grown and flourished, and it will, I hope and believe, continue to flourish, serving as a connecting link between the members of our scattered profession—scattered in their student days in many schools, obtaining their diplomas and degrees from many universities and corporations, and ultimately practising in every district of the United Kingdom, and every region of a united empire.

It now only remains for me to thank you for the attention with which you have been good enough to listen to me. Much of what I have said was, perhaps, known to many residents in the district. My object has been to act the part of a chamberlain, who, in the old royal courts, was the introducer of ambassadors; for you, gentlemen, who have honored us by visiting Manchester, coming, as you do, from foreign countries, from the many distant parts of the British Empire, and from every district of the United Kingdom, are the ambassadors of the profession of medicine. May your labors during the next few days help to draw closer the bonds which unite the various departments of our art, which in every clime has but one aim—the prevention or the alleviation of human suffering.

In conclusion, let me quote to you the words which, though written three centuries ago, yet express so aptly the sentiments which should animate a congress such as this. The noble words of the great Lord Bacon, in his preface to the Elements of the Common Laws of England, might, I think, be taken as the motto of our Association: "I hold every man," he says, "a debtor to his profession; from the which as men, of course, do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereunto. This is performed, in some degree, by the honest and liberal practice of a profession; when men shall carry a respect not to descend into any course that is corrupt and unworthy thereof, and preserve themselves free from the abuses wherewith the same profession is noted to be infected; but much more is this performed, if a man be able to visit and strengthen the roots and foundation of the science itself, thereby not only gracing it in reputation and dignity, but also amplifying it in profession and substance."

Tropical Diseases.—Sir William R. Kynsey, president of the Section on Tropical Diseases, said after a brief introduction: In the words of Lord Salisbury on a memorable occasion, "We live in a small bright oasis of knowledge surrounded on all sides by a vast unexplored region of impenetrable mystery. From age to age the strenuous labor of successive generations wins a small strip from the desert and pushes forward the boundaries of knowledge;" or, as that great philosopher, Professor Huxley, well puts the same idea, "The known is finite, the unknown infinite: intellectually we stand on an islet in the midst of an illimitable ocean of inexplicability; our business in every generation is to reclaim a little more land, to add something to the extent and solidity of our possessions."

Marvellously minute observation is perhaps the most notable feature of scientific research in the last quarter of the nineteenth and the opening years of the twentieth centuries, combined with a severe spirit of criticism, and that now, as has always been the case, science, like religion, metes out its rewards only to those who diligently seek it. In medicine one of the most surprising discoveries has been the relationship which has been proved to exist between insects and grave disease—the direct outcome of the modern spirit of research.

I have no intention of occupying your time with an account of the successive malarial discoveries made by observers of different nations which can now be found in the text, and are known to the man in the street, nor with the unworthy questions too often raised by discussions about priority. But it cannot be too often repeated that in the whole story of medical science there has been recorded nothing more wonderful than the prophylactic measures which have followed on the discovery of the malarial organism by the illustrious Frenchman, Laveran, and by the investigations into its life-history by Italian, German, and American observers, and by our own countrymen, Manson and Ross, according to the experimental method advocated by Bacon and Harvey. If these investigators have no other reward, they will have the highest satisfaction men of science can enjoy—that of extending our knowledge of disease and of doing good to humanity. I consider the discovery of the malaria parasite—and that man is its temporary and the mosquito its definitive host and transmitter, that it completes its asexual life and prepares its sexual forms in human blood, while it completes the sexual cycle of life, that by which the life of the parasite external to man is assured in a particular species of mosquito, and that man becomes infected only through the bite of the Anopheles—one of the most epoch-making events of the age in which we live. It may be truly said that scientific research has gone hand in hand with practical and preventive medicine.

The physician can give quinine with a full knowledge of how his remedy acts; and the sanitarian can try, and in many cases succeed in preventing the occurrence of malarial diseases by methods devised on scientific principles. The treatment and the modern prophylaxis of malaria exemplifying the Greek idea of Socrates and Plato that "right knowledge involves right action."

Another most gratifying result of the study of the causation of malaria, and directly traceable to it, is the increased interest taken in the investigation of all tropical diseases by the establishment of schools of instruction and the formation of scientific expeditions. In the schools of tropical medicine of London and Liverpool, and from the lectures on diseases of the tropics in many of our colleges, the medical man intending to practise abroad can acquire an acquaintance with the diseases he will be called upon to treat, special advantages long enjoyed by the army, Indian, and naval services in the great schools of Netley and Haslar. I have the most grateful recollection of the instruction I received at Netley, where diseases from all parts of the world could be seen and studied. No one who had the privilege of their acquaintance can forget the gifted and amiable Parkes, the father of hygiene, that accomplished gentleman speaker and writer Maclean, whose lectures may still be read with profit, and Aitken, the first pathologist of his day, whose work is a storehouse of facts relating to tropical medicine. It is pleasant for an old Netley man to feel that the instruction in that great school has not deteriorated, and that it continues to send forth highly-trained officers ever ready to fight disease in any part of the world. If the rumor is true that the army school is to be soon moved to London, I am sure you will all join me in wishing it a brilliant future.

In the history of the past year there is no great discovery to be recorded; it may be looked back upon as one of steady progress in elucidating some of the many problems of tropical medicine, the greatest and most beneficent being in the scientific prevention of disease. In the case of yellow fever the mosquito—a Culex, not Anopheles—has been tried and found guilty of being the sole agent in the spread of that disease. In Havana yellow fever was endemic for a century and a half; during the past year it has been freed from the scourge by killing the mosquitos in the neighborhood of each focus of disease as discovered, and by carefully disinfecting every house that had lodged a yellow-fever patient in order to destroy the mosquitos that had bitten a sick person. This great sanitary triumph must ever redound to the honor of American medicine.

No excuse is necessary in this section for dwelling a little on the important subject of the prophylaxis of malaria. An epidemic of any kind is among the most costly in life and money that can befall a town or district. An epidemic of malaria differs from other outbreaks of disease in this important fact, that its effects are not limited to the deaths it causes, but that it often leads to years of suffering, poverty, and depopulation.

I have high authority for stating that, taking one year with another, malaria destroys twice as many people in India as cholera, smallpox, and all other epidemic diseases put together. It is a matter of history that the same cause almost annihilated the soldiers of the Walcheren expedition, and the army under Wellington in Spain was so assailed by malaria that according to Ferguson the enemy and all Europe believed the British forces were exterminated. Malaria stopped the great Panama scheme of de Lesseps. I have known districts in Ceylon almost depopulated. A most disastrous outbreak occurred some years ago at Galle—a town previously malaria free—attended with great loss of life in consequence of the construction of a railway, the embankments of which were made by excavating pits at the sides that soon were filled with rain water. In those days the origin of the fever was, of course, attributed to disturbance of soil. We now know the pits provided breeding places for the Anopheles, and the Sinhalese and Tamil laborers from malaria districts supplied the organisms.

Although we were ignorant of the true conditions which caused the outbreak, we advised the filling up of the pits on the disturbance of soil theory with satisfactory results, proving that much can be done in the prevention of disease before full knowledge of causation is reached.

I will only occupy a few minutes of your time while I describe two experiments—one made by the Colonial Office on Dr. Manson's advice, and the other by the Japanese Government, which clearly show it is both possible and practicable to prevent malarial infection.

In the experiment conducted by Drs. Sambon and Low in the Roman Campagna and in London in order to prove the truth or error of the mosquito malarial theory, and also how far protection against malaria might be consistent with the ordinary avocation of life, two experiments were necessary, one that healthy persons in London should be bitten by infected mosquitos from a malarious region, and the second that men should live in an undoubtedly malarious place during the fever season, being protected only from the bites of mosquitos. Those bitten in London contracted ague. Drs. Sambon and Low and two others lived in a mosquito-proof hut in a most intensely malarious place in Italy, where all the inhabitants suffered from malaria. The four inhabitants of the hut remained perfectly healthy all the time, and, I believe, are so still.

The experiments by the Japanese Government were carried out on the Island of Formosa, and they furnish a most conclusive demonstration of the relations between mosquitos and malaria. A battalion of soldiers who were completely protected from mosquitos for 161 days during the malaria season escaped the disease entirely; whereas there were 259 cases of malaria in another battalion in the same place and during the same length of time not protected from mosquitos.

I am sure you will agree with the conclusions of Drs. Sambon and Low that their experiments prove that mosquitos only are capable of transmitting malarial fever; that protection from their bite implies absolute immunity; and that protection can be easily obtained. If further proof is considered necessary for large bodies of men, it is furnished by the Japanese experiment.

By a study of the life-history and surroundings of the Anopheles, and by varied and long-continued experiment, Ross has determined the best means of preventing malarial infection. He advised the extermination of the Anopheles, and although this is difficult it is not so difficult as at first sight it appears. These mosquitos breed in small pools of a certain kind easily recognized and easily dealt with, always close to human habitations, as the females must pass frequently between the pools where they lay their eggs and the houses where they obtain their food. If the Anopheles are found in a house the breeding puddles are close by. The great practical points derived from Ross's work are two:

1. That the life of the Anopheles is in direct and intimate relation with the annual epidemics of malarial fever.
2. That it is only necessary to drain the Anopheles puddles and not the whole of the malarious district.

In conclusion, I believe the discovery of the malarial parasite, and the investigations into the life-history of the mosquito which conveys it to man have placed us in the position to suggest measures which if carried out would have the effect in an unhealthy district of largely reducing the amount of malarial fever and eventually of exterminating it.

1. Malarial fevers should be included and notified among infectious diseases, so that precautions could be taken to prevent their spread.

2. Persons suffering from malaria primary infections or recurrents should be isolated and treated with quinine to prevent as far as possible the infection of mosquitos.

3. Persons infected with malaria should be prevented coming to a healthy place to infect mosquitos.

4. The puddles in which the Anopheles breed should be drained and filled up to destroy the larvæ.

5. Doors and windows of houses, gaols, and hospitals in malarious districts should be screened with wire gauze, and beds should be provided with netting to prevent mosquitos entering and biting the occupants.

(To be Continued)

SOCIETY OF DERMATOLOGY AND GENITO-URINARY SURGERY.

Stated Meeting, Held May 9, 1902.

The President, R. H. Greene, M.D., in the Chair.

Dr. James Pedersen presented an Armenian, twenty-eight years old, who had been admitted to the genito-urinary service of Bellevue Hospital in February. The patient's imperfect knowledge of English made a detailed history impossible, but it appeared that for many years he had had a mass involving the right side of the scrotum, and that four days before admission it had begun to increase in size without discoverable cause. Examination revealed a pear-shaped, semi-elastic or boggy tumor involving the right testicle and extending upward into the inguinal ring. In the region of the testicle it was moderately painful and tender. At one point it was translucent and by the aspirating needle a little clear serum was evacuated. Hernia was considered and excluded. Antispecific treatment was tested for a week without result. An exploratory operation was therefore thought justifiable, and it was undertaken with the expectation of removing the testicle with the tumor if it proved at all suspicious of malignancy, as its size interfered with the man's ability to do his work. It was supposed that an unnoticed traumatism had started up an inflammation in the tumor. An incision was made over the region of the testicle. The tunica vaginalis was found greatly thickened; it contained a little serum. The testicle was tumefied and dusky in appearance. It was decided to remove it as suspicious, the patient being desirous of radical relief. The incision was carried up, laying open the inguinal canal in order to reach the limit of the tumor; the pedicle was transfixed and ligated. On starting to cut it through, a mass of omental fat protruded. The ligatures were cut away, and by extending the operation an incarcerated omental hernia was exposed, closely attached to the upper pole of the testicle. The hernial sac was dissected out, and the redundant omentum ligated and cut off. The appendix now presented in the neck of the sac, but as it was healthy its removal was not attempted. The sac was ligated in the usual way and the operation completed by the Bassini method. The testicle was not removed. Primary union was obtained. The patient left the hospital four weeks after the operation. Some tumefaction of the testicle remains and there is some thickening of the cord near the external ring, apparently only of a chronic inflammatory nature.

Dr. Howard Lilienthal believed that Dr. Pedersen's case was one of congenital hernia and that the only question of diagnosis now related to the thickened mass. He asked if the doctor had cut off the sac entirely.

Dr. Pedersen replied that he had, and that the lower portion of the sac was adherent to the testicle. Ligatures were passed around it and it was drawn up, but not in the same way that one draws up a purse-string suture. It was transfixed and tied at a level with the internal ring.

Dr. Lilienthal said that the mass then could not certainly be the sac and that it probably was an inflammatory thickening or the result of some disturbance of circulation.

Dr. Frederic R. Sturgis (guest of the Society) said that the hernia was probably congenital. The thickening might be due to some inflammatory trouble after the operation, although he confessed that he thought of syphilis as a cause of the thickening. One hundred and eighty grains of the iodides for a week he did not think was sufficient to exclude the possibility of syphilis; the dosage was too small. The case reminded him of one seen some years ago in which he opened the scrotum and satisfied himself that he had to deal with a syphilitic process. The wound was closed and, much to his surprise, the swelling went down without further treatment, just as this swelling did. The thickening he thought might be due to one of two things: (1) Syphilitic infiltration of the cord or (2) inflammatory infiltration after operation. He strongly favored the diagnosis of syphilis.

Dr. R. H. Greene thought the swelling above the testicle was very interesting; if it had diminished since the operation he would be inclined to believe that it was an inflammatory exudate; but if it had increased in size he thought he was justified in thinking that the patient might be having a relapse of the hernia

A Case of Atrophy of the Testicles.—Dr. F. Cabot presented a patient who came to the Presbyterian Hospital complaining of wasting of the testicles. He gave a history of having had mumps fifteen years previous on both sides, and for fourteen years past he has had a varicocele. The case was of particular interest, both on account of the varicocele and mumps as a cause of atrophy of both testicles. The varicocele was a very large one and the patient wished to know what could be done for him. Whenever he reclined the varicocele almost entirely disappeared. The doctor thought this was a favorable case for the subcutaneous method of operation.

Dr. Goldenberg failed to see what benefit could follow such a procedure upon the varicocele when there was atrophy of the testicle. Some time ago a man presented himself who, in his early youth, had had mumps with atrophy of the testicle of one side. This man was then about sixty-six years old, with a hypertrophied prostate and, much to the doctor's surprise, the lobe on the side of the atropic testicle was larger than that on the other side.

Dr. Pederson thought that it would be worth while to give the patient the benefit of a doubt and operate. He thought the right testicle was only of moderate size and the positive testicular sensation on pressure was present; the left testicle was small, but here also the testicular sensation existed. Both testes were rather soft.

Dr. Eugene Fuller (guest of the Society) said he would do the subcutaneous ligation in this case, although he would offer but little encouragement for the betterment of the testicles. In reference to Dr. Goldenberg's question he said that he remembered a case, seen several years ago, in which a man with mumps ran a temperature of 105° F., was delirious, and one of his testicles was greatly enlarged. On the corresponding side the prostate and vesicles were extremely tumefied at the time. His delirium seemed to be due either to some inflammation of his sexual apparatus or to his high temperature. The testicles did not atrophy afterward. It showed that the testicles and seminal vesicles had both been involved in this case. He had never seen any hypertrophy following these cases.

Dr. Goldenberg said that he intended to say that in spite of the atrophy of the testicle the patient had a hypertrophied prostatic lobe on the same side, showing that the atrophy had no effect upon the prostate.

Dr. Fuller said he had known of cases of atrophy of the testicle without atrophy of the prostate on that side, a history of mumps being absent.

Dr. Lilienthal believed that in the presence of this varicocele an operation was proper and his preference would be for the open operation. He mentioned the case of a man who had an enlarged prostate and, in the days of castration for this trouble, he was castrated. This patient was fearfully annoyed until death, which occurred one year after, with a tremendous ptyalism, his parotid glands acting in an astonishing manner. He was kept on atropine nearly all the time in attempts to stop the flow of saliva.

Dr. Sturgis said that the question of operation of course related only to the varicocele and he did not see what was to be gained by the subcutaneous method, because the collateral circulation would reestablish the condition. He would prefer either the open operation or else the ablation of the testes after the method of Henry, which lifts the testicle and gives the veins a chance to empty. The testicle on the right side was practically gone.

Dr. Fuller said that, in employing the subcutaneous method, he did it always in a radical way and he was always sure of his results because he did it correctly; it was a more technical operation. He believed that when he once destroyed the veins he never needed to attempt an ablation of the scrotum. After the removal of the big veins the dartos regains its tone and the redundency of the scrotum disappears in six months. He did not see the necessity for ablation of the scrotum except in cases of elephantiasis of that part.

Dr. Greene said that one or two years ago he operated by the open method in a case similar to this and he could not say whether there was any marked increase in the size of the testicle. The moral effect on the patient was a good one, for he soon got married. With regard to the question as to whether either side of the prostate atrophied and corresponded to the atrophy of the testicle of the same side, he thought it would be a difficult thing to decide, because it was particularly hard to determine by feeling through the rectum whether the prostate was enlarged or atrophied. It is said that the hypertrophic prostates are mostly inflammatory and that the same things may cause an hypertrophy of one part and an atrophy of another part.

A Case for Diagnosis.—Dr. T. G. Lusk presented a man who had had a macular eruption of red color on the right side of the face since one year ago last February; it started gradually and extended until it involved the entire right cheek. There was considerable itching. No scales are present. The affection is limited to the right side of the nose and cheek. It started from the nose. At the present it does not itch, but annoys the patient on account of its conspicuousness.

Dr. Leviseur thought the condition was an erythema; by pressure the redness could be made to disappear. It might be the beginning of a lupus erythematosus. He thought the localization of the redness might have something to do with the patient's occupation, as he is a fireman, and perhaps exposes one side of his body toward the heated furnace.

Dr. Whitehouse said that it was exceedingly difficult by artificial light to determine anything definite with regard to the diagnosis. He thought it might be one of two things. He first thought of a lupus erythematosus, atypical in form, being asymmetrical, and lasting so long without atrophy or other signs of the disease. The man had had the same occupation for eleven years, and the eruption had existed only one year, and was unilateral, which would hardly be expected if occupation were the cause. Very frequently he sees patients with a form of erythema depending upon a low grade of sepsis with some disease of the nose, such as a deflected septum, or small ulcerations.

Dr. Goldenberg thought that it was an erythema unilateralis—rather an unusual form of erythema due to disturbances within the nose. He failed to find symptoms of lupus erythematosus even if one remembered the description of Hebra, who first called lupus erythematosus seborrhœa congestiva. The affection might develop into a lupus erythematosus, but such a diagnosis was not possible at this time.

Dr. Lusk said that it did not appear to be a case of lupus erythematosus, because the color was a bright red instead of purplish; there was an entire absence of scales and the demarcation was not pronounced.

Specimens of Calculi.—Dr. Eugene Fuller presented several such specimens. The first were taken from an old man who came for treatment with prostatic symptoms and vesical hemorrhages. He was a very large, stout man and a perineal operation had been done three or four years ago for stone when he had all the symptoms of stone, but none was found. In operating Dr. Fuller found a prostatic pouch which contained a collection of stones, all facetted, seventeen in number, composed of uric acid. The second collection of calculi shown were taken from a patient in the City Hospital who gave prostatic symptoms. He suffered from frequent and painful urination. He had a boggy prostate. During operation there was found at the entrance to the membranous urethra a fistulous opening which communicated with a cavity; the finger following the probe entered a soft, velvety-lined cavity as large as one half an English walnut, in which were found the calculi presented. The cavity was curetted, packed with gauze, and a perineal drain placed in position. The third specimen presented was taken from a man who came into the hospital suffering from prostatic retention and was straining tremendously. There was a doubt whether a stone was present or not. On entering the bladder suprapubically a pouch with a stone was found; the calculus was smooth on top and rough below; it was lying flush with the prostate and was wedged in the cavity so tight that it would have been impossible to get it out without the operation. The fourth stone presented was removed from a patient six weeks ago. He came with a history of retention and said that twenty years ago he had had gonorrhea with a penile fistula resulting. When the patient was first seen his penis was almost in a state of constant erection, but the end hung down. He had to sit down to urinate and no urine came from the meatus but leaked through the fistula. When the probe was introduced into the latter it struck a stone; this stone had formed in the fistulous tract and had gradually increased in size and become wedged. The patient was operated upon, the scrotum being passed over the stone, and then cut through.

Dr. Cabot said that in cases of enlarged prostate with symptoms of stone it was a very good plan to remove the prostate as well as the stone as pointed out by Dr. Fuller. Often one sees cases with symptoms of stone in which the prostatic condition is overlooked. Many of these cases of prostatic trouble are the cause of the stone formation.

Dr. Goldenberg said that two weeks ago he saw in consultation a patient with stone in the prostatic urethra. It was removed. Ten days afterward the patient was taken ill with renal colic.

Dr. Greene had seen prostatic stones in two cases, in both of which they were of the phosphatic variety and looked like tiny oyster shells.

Dr. Lilienthal asked Dr. Fuller if he could give any reason for the facetting of these stones. In some cases there were numerous stones without facets. He took on one occasion eighty stones from one bladder, the sizes varying from that of a pea up, and all were perfectly round. If the stone becomes facetted it meant to him that the stone must remain in one position for a long time.

Dr. Fuller thought that if the stones were free, rolling around with others, they were more likely to become polished and remain round; when these stones were facetted they were generally in a pouch. A point that interested him was the etiology of the cavity in which the stones were found; he could not find a cause for it, although he thought it might be due to a localized necrosis, perhaps tuberculous in character. In the City Hospital a few years ago, at a postmortem, he found a spot of tuberculous necrosis as big as a marrowfat pea; it had probably become cheesy, the urine had entered and produced a cavity with granulation tissue forming around the edge of the necrotic area. He remembered another case occurring in a tuberculous patient in which there was a cavity with a beginning calculi; this patient gradually recovered, but later developed a tuberculosis in one of his epididymes.

Dr. Greene said that these stones might be formed at the mouths of prostatic ducts which became obstructed, the secretion continuing and solidifying, the same process as that producing the so-called corpora amylacea.

A New Method of Prostatic Exploration.—Dr. Lilienthal said that he had a man under observation at the present time who had a right-sided hernia and who had been troubled for a long time with an enlarged prostate. He had a cystitis with a considerable amount of pus in his urine. Examination per rectum revealed a prostate very moderately, if at all, enlarged, but by examining the hernia he found that he could introduce his finger into the bladder and map out the prostate very easily. The lobes could be distinctly felt, the invaginated tissues interfering to the touch not more than a fairly thick glove over the finger. In the future if he was called upon to examine a patient's prostate, and if that patient had a hernia (a common combination), he would make use of this simple method of exploration.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held May 15, 1902.

The President, A. M. Eaton, M.D., in the Chair.

Dr. J. Cardeen Cooper read a paper entitled Acute and Chronic Tuberculous Phthisis, with Cases, in which he gave a résumé of the history of the doctrine of the communicability of phthisis and stated that it is now generally recognized that the disease is both hereditary and inoculable. The subject was considered under the two subdivisions, Acute Phthisis and Chronic Phthisis. The greater number of cases of the acute variety occur between the ages of twenty and thirty and are frequently mistaken for acute lobar pneumonia, and in children the diagnosis is often confused with broncopneumonia. In children the disease frequently follows whooping-cough and measles, while in adults the causes more closely resemble the hereditary tendencies, together with a "run down" system. The prominent symptoms are a chill or series of chills, followed by high fever, rapid pulse, restlessness and short breathing; usually some considerable portion of the lung tissue is airless, and there is always impaired resonance of the apices, and the breath sounds are harsh. Expectoration is copious and contains tubercle bacilli; hemorrhage may occur at any time; the patient rapidly loses strength and weight, and in the more quickly terminating cases death usually results in from six to ten weeks; on the other hand it may not result fatally for months, becoming rather a chronic case. Three cases were reported, varying in age from twenty months to twenty-six years, the child aged twenty months dying in about four and one-half weeks; the woman aged twenty-one years in about ten weeks, while the third case, a woman, aged twenty-six, after a residence of fourteen months in another climate, returned home apparently in good health. Pulmonary phthisis of the chronic type was thought to occur in a large measure among people whose occupation necessitated their constant habitation of poorly ventilated rooms, where in the course of their employment they were continually inhaling air laden with fine dust, such as is found in the works of sculptors, mines, etc. Poor food, bad air, overwork and improper hygiene no doubt also act as predisposing causes of this condition. The first symptom noticed is usually a slight dry cough, and in the early stages the sputum examination may or may not be negative so far as the presence of yellow elastic tissue and tubercle bacilli are concerned. There is usually a rise in temperature; sweating and hemoptysis may occur at any stage of the disease. Expansion is impaired; resonance is defective and the percussion note high pitched in the apices. Three cases were reported, two of which died in fourteen months and two years respectively after coming under the author's observation, the other apparently recovering.

The discussion was opened by Dr. Howard S. Anders, who stated that while he did not believe that drugs should be considered as the first and foremost agents in the treatment of tuberculosis, he felt that there were many cases in which this line of treatment was of distinct advantage, either as a palliative measure, or to increase the power of resistance of the individual in combating the disease. As a remedy of the latter class, the oils were thought to hold the first position, and in the opinion of the speaker olive oil is superior to either cod-liver oil or the animal fats, such as butter and cream, being more easily digested and giving quite as good results. Reference was made to the experiments of Dr. Harper of England with the urea treatment, which is administered in doses of from 15 to 20 grains three or four times a day, and it was stated that in the incipient stages of the disease, when the condition was uncomplicated by mixed infection, the results had been exceedingly favorable, but when mixed infection had taken place, the outcome was no more favorable than with the ordinary treatment. Ichthyol and other similar remedies were referred to, none of which, in the speaker's opinion, was of any especial value. Attention was directed to the favorable results obtained by Dr. Mays with injections of 2½ to 5-per-cent. solutions of nitrate of silver, although the speaker had had no personal experience with this remedy. As a general tonic, the intermittent use of strychnine for four or five days at a time; and as cardiac tonic, if too much fever is not present, digitalis was recommended. Alcohol, it was thought, should be used with as much circumspection as any other drug. For the relief of cough codeine was thought to give probably the best results, although heroin in doses of $^1/_{60}$ to $^1/_{80}$ of a grain every two or three hours was favorably considered, as was also calcium chloride. For the relief of hemoptysis, the internal use of gelatin was recommended as favoring the increased coagulability of the blood.

Dr. Lawrence F. Flick stated that he believed climate in its literal sense was of very little value in the treatment of tuberculosis, this conclusion having been reached by personal experience, dietetic and hygienic measures and environment being in his opinion the keynotes to the treatment of this condition. Out-door life and forced feeding, such foods as beefsteak, milk and eggs being employed, were thought to be the principal factors in the treatment and, with the observance of these directions, the opinion was expressed that 100 per cent. of the cases could be cured, provided the disease was diagnosed before it reached the softening process; and even if the latter stage has been reached, it was thought 75 per cent. of the cases would recover. In cases in which there is an increase in the temperature and pulse-rate, absolute rest, and in which the temperature is about normal, partial rest and regulated exercises were recommended. The opinion was expressed that perhaps the doctrine of the incurability of tuberculosis had been too widely diffused, and that the same degree of care had not been exercised in its treatment as in other conditions, which would perhaps to some extent account for the great mortality. The speaker believes that in all cases of tuberculosis, there has been a time when there was but a small dose of the disease in the system, and that the so-called acute cases, or galloping consumption have no doubt been an infection of long standing, but unrecognized. The belief was also expressed that perhaps 50 per cent. of the cases in which the germs have been implanted recover without treatment. Attention was directed to the importance of thorough examination, together with night and morning temperature observations in all suspicious cases.

Dr. Louis Jurist stated that he quite agreed with the previous speaker in that many cases of tuberculosis were unrecognized during the early stages. Ichthyol was thought to have no value whatever, and the speaker's experience with heroin had been that it had produced practically all of the symptoms of the morphine habit. Discipline, or the precise following out of directions as given by the physician, was thought to be the most important factor in the treatment of tuberculosis, and if this can be obtained the belief was expressed that just as good results could be obtained in Philadelphia as in any other climate.

Dr. S. Solis Cohen stated that he believed the most important factors in the treatment of tuberculosis were air, water, food, sunlight, rest and exercise, although drugs were considered of great value as an adjunct to these measures. While the value of climatic treatment was not discounted, the speaker felt that, as such a large percentage of all the cases of this disease were unable to avail themselves of its benefits, we should endeavor to simulate as nearly as possible these conditions at home, by keeping the patient in the open air as much as possible and by thoroughly ventilating the living and sleeping apartments. The insistence upon the strict observance of the directions laid down by the physician was thought to be necessary and the difficulty of securing proper discipline was commented upon. The opinion was expressed that 75 per cent. of all cases of pulmonary tuberculosis would recover if properly treated, but the ideal treatment, it was thought, could be obtained only in the homes of the wealthy or in the cases of the very poor, who had the advantage of the sanitaria. Air and light should always be insisted upon, as they are important factors in increasing the resisting power of the patient. The use of the cold plunge bath in the morning was recommended; while in some cases this may be taken immediately upon rising in the morning, in the majority of cases it was thought better to warm the surface of the body first by an application of hot water in order to avoid a material reduction in the temperature. For the reduction of abnormal temperature, the application of the cold water coil or ice-bag over the precardial area was recommended. The internal use of water as a means of increasing the eliminative functions of the body was favorably commented upon. Regarding food, reference was made to the meat diet recommended by Salisbury, which consisted in lean meat chopped fine, with the fibrous portion removed, the patient being recommended to eat this raw; if this could not be done, then in the form of lightly browned Hamburger steak. The value of this treatment has been emphasized by the more recent reports of the muscle plasma treatment and of the urea treatment of Harper of England. The food should be as much as possible of a nitrogenous character, while the consumption of starches should be reduced to the lowest margin. The administration of large quantities of fat is one of the most important factors in the treatment of tuberculosis, and cod-liver oil, as well as milk and cream, were thought to be the preferable means of taking it. The judicious use of rest and exercise according to the condition of the patient was commented upon, and horseback riding and walking were recommended, as were also breathing exercises.

Dr. H. Booker Mills said he thought that many of the patients who had gone to other climates and returned apparently no better had received great benefit from their sojourn, and that their after improvement depended to a great degree upon the effect of these climatic measures. In support of the value of climatic treatment he cited several cases, among them that of a child who manifested no symptoms of the disease while residing in Denver, but a few months after coming to Philadelphia developed symptoms of phthisis, the symptoms being ameliorated upon going to Atlantic City or the White Mountains, but immediately becoming prominent upon her return to Philadelphia. As to the use of heroin he stated that in his experience much better results had been obtained with the liquid form.

Dr. J. Cardeen Cooper, in closing the discussion, stated that he felt a great deal depended upon the climatic conditions, and that in the term "climate" could be included not only the change from one latitude or altitude to another, but the change from the city to the country. He stated that he did not believe the urea treatment was of much value; in his opinion cod-liver oil is the most favorable way of administering fat. As a diagnostic factor attention was directed to the importance of carefully noting the nature of the chest expansion, the percussion note and the pitch of the resonance note.

BOOKS RECEIVED.

Mother and Child. By Dr. E. P. Davis. 12mo, 264 pages. J. B. Lippincott Company, Philadelphia.

Diseases of the Nose, Pharynx, and Ear. By Dr. Henry Gradle. 8vo, 547 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

Cellular Toxins or the Chemical Factors in the Causation of Disease. By Drs. V. C. Vaughan and F. G. Novy. 8vo, 496 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

A System of Physiologic Therapeutics. Edited by Dr. Solomon Solis-Cohen. Vol. IX. By Drs. W. Winternitz, A. Strasser, B. Buxbaum and E. H. Kisch. 8vo, 570 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

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ORIGINAL ARTICLES.

PHYSIOLOGY OF THE PANCREAS.

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IN 1643 John George Wirsung, holding the famous chair of anatomy at Padua, reported with much detail his discovery of the duct of the pancreas. He describes its entrance into the duodenum near the biliary duct and likewise its ramifications in the body of the pancreas, and he notes that this duct, which to-day we call the duct of Wirsung, never contained blood and hence could not be an artery or vein. On the contrary, he describes it as frequently filled with a colorless fluid, but he had no conception of the function of this gland, which up to that time was classed by Malpighi along with the salivary glands, thyroid and thymus as a gland without ducts and with no particular function. Wharton the Englishman and Stenson the Dane were to come later and by their work on the structure of the submaxillary and parotid glands, the ducts of which they discovered, paved the way for a consistent theory of secretion. Stenson clearly saw that in the production of saliva, for example, the arterial blood brings matter to the gland, which in some fashion passes it on to the beginning of the duct and thus renders possible the formation of a specific secretion. He even theorized as to the way in which the nerves going to the gland might act, but he naturally lacked knowledge of the minute structure of glands and so could not formulate any detailed theory of secretion. While Wirsung had evidently seen pancreatic juice, it remained for De Graaf, a pupil of Sylvius of Leyden in 1664, to make a pancreatic fistula and thus obtain the secretion in some quantity. It is interesting to note how at this early date, after various unsuccessful attempts, he at last succeeded in accomplishing his purpose. Using the quill of a wild duck as a cannula, he opened the abdomen of a dog upon which he had previously performed tracheotomy, and after ligating the duodenum below the ducts, as well as below the pylorus, he introduced the quill into the duct of Wirsung, and as he says, obtained in one case from a large dog a full ounce of pancreatic juice in a period of about seven hours. De Graaf, it will be remembered, was a pupil of Sylvius and was no doubt greatly influenced in his opinions by the teachings of this noted physiologist. However this may be, De Graaf, in his study of pancreatic juice, made this secretion conform in composition with the conception of Sylvius that chylification was a form of acid fermentation. Although forced to rely mainly upon his sense of taste as a means of chemical analysis, De Graaf states that pancreatic juice is sometimes insipid, sometimes acid or rough, often salt, but generally acid-salt, and its use in digestion was to effervesce or to ferment with the bile. As De Graaf states, "that effervescence is excited by the mixture of pancreatic juice which abounds in acidity with bile which abounds in volatile and fixed salt, we dare all the more boldly assert, since hitherto we have met with no example of an acid spirit meeting with a lixivious salt without a manifest effervescence resulting, provided impediments are removed."[1] De Graaf, however, clearly recognized that this theory was not quite so well supported as it should be, for he himself had observed that when bile and pancreatic juice were mixed together outside of the body no effervescence could be detected. Still, he had a theory to support and, in harmony with the methods pursued by some scientists of the present day, facts were ignored and the imagination was given a free rein. So says De Graaf, "No one ought to wonder that we cannot demonstrate an effervescence between bile and pancreatic juice outside the living body, since neither artificial heat nor the natural warmth of the hand can excite such a heat as we know exists in the small intestine on account of the surroundings of the very warm viscera."[2] But neither Sylvius nor De Graaf were able to explain how this hypothetical effervescence in the intestine promoted digestion. They simply asserted that in some manner it aided or accomplished a proper separation of the useful parts of the food from the non-nutritious or useless material. The only virtue in their work and in their theories—as we look at them to-day—lies in the great importance they attached to the pancreatic juice as a factor in digestion, for it is to be remembered that their labors antedate by nearly two centuries the classical work of Claude Bernard.

But there is another chapter in this ancient history of the pancreas that must not be passed by. In 1677 Peyer made announcement of his discovery of certain glands located in the intestine, which we still call by his name, and to which he ascribed important functions as the source of a secretion having power in digestion, and he argued that it was the function of this secretion to continue the work commenced higher up in the intestine by the pancreatic juice. It was natural, therefore, under the circumstances, that doubt should arise in the minds of some as to the supreme importance of the pancreas and pancreatic juice in digestion, and in 1682 Brunner, who later filled the chair of medicine at Heidelberg, published the results of some experiments upon the extirpation of the pancreas. He operated upon dogs, but, as he says, was not able to remove quite all of the glands, since the extreme end of the pancreas lay so deep in the body that he could not reach it with the knife. He states that the animal usually recovered from the operation and then showed no noticeable after-effects. Its health appeared unimpaired. "It ate, drank, ran about as usual, was well nourished, and all its digestive functions were carried on normally. Obviously, says Brunner, Sylvius and De Graaf were wholly wrong in attributing the importance which they did to the digestive powers of the pancreatic juice. The animals on which I operated secreted no pancreatic juice into the intestine, the duct and nearly the whole gland having been done away with; yet they digested as usual."[3] We may well believe to-day, especially in the light of more recent experiments, that pancreatic digestion is not an absolute necessity in the nutrition of the body, but it is well to remember that in these experiments of Brunner, carried out over two hundred years before Von Mering and Minkowski made their noted observations, we have the forerunner of experiments that in this generation were to determine a relationship between the pancreas and glycosuria and make clear the existence of an internal secretion of far greater physiological importance than the secretion of pancreatic juice.

Further, as another illustration of the early anticipation of modern physiological thought, it is interesting to note that Brunner did several operations in which he first extirpated the spleen and then later the pancreas, and it is very suggestive to observe that Brunner called attention to the fact that "the animal, after recovery from the operation, made water very frequently and that he was very thirsty, drinking largely of water in proportion to the discharge of urine." One may well question whether, in addition to the polyuria Brunner observed, glycosuria was not also present.

It is passing strange that such a long time should have elapsed between these early discoveries of the seventeenth century and the epoch when true scientific advance commenced. For two centuries rival theories were bandied about, each more absurd than its predecessor; the iatro-chemical school were contesting the views of the iatro-mathematical school; vitalism was at one time preëminent, only to be pushed aside by some theory equally intangible, until finally digestion gained recognition as a chemical process through the labors of Spallanzani (in 1783) and by the work of our own Beaumont in 1830. Not until 1846, however, did Claude Bernard commence his studies on the digestive power of the pancreatic juice, and not until 1856 when Bernard's "Leçons" were published was there any concise knowledge of the digestive power of this secretion. Bernard, from his own discoveries, was inclined to lay great stress upon the adipolytic or fat-digesting power of the pancreatic fluid. Amylolytic power had been practically established by Bouchardat and Sandras in 1845, while Corvisart in 1857 had clearly proved the wonderful proteolytic power of the pancreatic secretion. Since then, Meissner, Kühne, Heidenhain, Langley, Kossel, Pawlow, and a host of other physiologists have one after the other brought to light additional facts bearing upon the secretion of the pancreatic juice and upon its manifold digestive power. To-day we understand that the pancreas consists of secretory alveoli, while between these are to be found groups of other cells which clearly have a different function. The cells of the secretory alveoli manufacture and store up within themselves, in the form of granules, the antecedents of the various enzymes or ferments which give character to the pancreatic fluid.

The secretion of pancreatic juice is normally called forth by some form of stimulation, usually reflex, exerted upon the mucous membrane of the stomach and duodenum. Thus, acids brought in contact with the duodenal mucous membrane produce at once a secretion of active pancreatic juice. Alkalies, on the other hand, have no such action, and Dolwiski asserts that the acid products of gastric digestion bring about their own neutralization by inducing a flow of alkaline pancreatic juice when they pass into the small intestine. Other substances, notably ether, produce a secretion of pancreatic juice when introduced into the stomach, and no doubt many food products absorbed from either the stomach or the intestine cause a reflex secretion of pancreatic fluid.

The secretion of pancreatic juice is undoubtedly controlled by true secretory fibers, although, as in the cases of most other secretions, the vascularity of the gland exercises a very potent influence. Thus, Pawlow of St. Petersburg has pointed out that a brief stoppage of the blood-stream causes a cessation of the flow of pancreatic juice, and in anemic conditions of the gland resulting from reflex nervous influence there is a similar cessation. The gland is unquestionably extremely sensitive to vascular changes, but it is not to be inferred from this that the secretory activity of the pancreas is controlled solely by changes in vascularity. Vigorous secretion is usually accompanied by vascular dilatation and ordinarily direct or reflex vaso-constriction of the pancreas will prevent the action of the true secretory fibers. Thus, when the sympathetic is stimulated there is usually no effect upon secretion because the vaso-constrictor fibers are stimulated at the same time, but if the sympathetic nerve be cut some days previously, so that the constrictor fibers may degenerate, then stimulation of the sympathetic will be followed by a secretion of pancreatic juice. Again, as Pawlow has shown, if the vagus nerve be divided in dogs, the pancreatic nerves being intact, stimulation of the peripheral end of the cut vagus will, under certain conditions, cause a secretion from the pancreas. Further, atropine, which is well known to inhibit secretion by paralyzing true secretory fibers, tends to inhibit pancreatic secretion, while pilocarpine excites secretion from this gland. In other words, both the vagus and the sympathetic contain true secretory fibers which control in some measure at least the secretion of pancreatic juice, but these may be counteracted to some degree by the vaso-constrictor fibers of the sympathetic. Lastly, it may be mentioned that some recent investigators, notably Popielski, claim the existence in the vagus of inhibitory fibers, antagonistic to the secretory fibers, a view which gains some support from the long latent period noticed after stimulation of the vagus, and in the fact that a secretion incited by peripheral stimulation of the vagus can later be checked by repeating the stimulation of the same nerve.

We also understand that the pancreatic juice is a strongly alkaline fluid containing an enzyme which quickly transforms starch into soluble dextrins and sugar, mainly maltose; that it contains a second enzyme having power to break up neutral fats into glycerin and free fatty acids, and, lastly, that there is present a proteolytic enzyme which transforms proteids or albuminous foods into proteoses and peptones, and these in turn into a row of simple crystalline compounds, *viz.*, amido-acids, such as leucin, tyrosin, etc., and hexone bases such as arginin, lysin, histidin, etc. Such then, briefly outlined is the character of the pancreatic juice; the product of the secretory activity of the cells of the pancreatic gland, but it would be undesirable to dwell longer upon this phase of the physiology of the pancreas, important though it may be, since recent discoveries have placed this gland in a much more prominent position, because of its plain connection with certain processes of nutrition or metabolism, of primary importance to the well being of the organism. To-day we clearly recognize the pancreas as an organ in which processes of great weight take place; an organ which clearly manufactures an internal secretion of supreme importance, or in some manner exercises a potent influence upon nutrition.

In a noteworthy paper published in 1890, Von Mering and Minkowski[4] called attention to the fact that complete extirpation of the pancreas in dogs was followed by diabetes. The excretion of sugar commences in from four to six hours after the operation, and at the end of from twenty-four to forty-eight hours reaches a high figure, as much even as 5 to 11 per cent. Even after seven days' fasting, the sugar does not disappear from the urine. Naturally, when the dog is well fed, as on meat and bread, the amount of sugar excreted is still greater. Thus, one dog of sixteen pounds body-weight secreted daily on such a diet from seventy to eighty grams of sugar for a long period. The sugar so secreted had all the reactions of dextrose. It is also to be noted that after total extirpation of the pancreas there are abnormal appetite and great thirst. This is accompanied by marked polyuria, a dog of twenty pounds body-weight excreting 1,700 cubic centimeters of urine in twenty-four hours. In spite of the increased appetite and nourishing food the animal rapidly grows emaciated, loses strength, and in three weeks after the operation the muscles are usually so weakened that the animal cannot walk. Further, it is to be noted that sooner or later, in addition to the sugar, acetone, aceto-acetic acid and oxybutyric acid are excreted, *viz.*, substances which are frequently found in the urine in severe cases of diabetes mellitus. The diabetes continues up to the death of the animal, which may occur within a week, while practically none of the dogs operated on live longer than four weeks. On postmortem examination quite noticeable in nearly all cases is the fatty condition of the liver, the fresh organ frequently showing from thirty to forty per cent. of fat.

Equally noteworthy is the lack of these symptoms when the pancreas is only partially extirpated. Under such conditions sugar does not appear in the urine, even though the larger part of the pancreas is removed.

It is evident that the appearance of diabetes in these cases is dependent directly upon the disappearance of the pancreas. Interference with the ordinary functional activity of the pancreas does not bring about diabetes. Complete occlusion of the duct of Wirsung, as by injection of paraffin into the ducts, thereby abolishing the passage of any pancreatic juice into the intestine, even when accompanied by almost complete atrophy of the gland, does not ordinarily cause diabetes. Plainly, extirpation of the pancreas leads to a change in some of the processes of metabolism in the body. As Von Mering and Minkowski suggest, two possibilities present themselves—either the pancreas normally has the power of removing or destroying some ferment or toxic substance, the retention of which in the organism causes an excretion of sugar, or it is normally a function of the pancreas to regulate the consumption of sugar in the body. In any event, we have here a new function of the pancreas which is well worthy of closer study.

As one scrutinizes the various results obtained by many investigators in this field during the past few years, it seems probable that in the pancreas there must be located certain specialized cells which manufacture an internal secretion; something which exercises a controlling influence upon certain lines of metabolism in the body. When this internal secretion is wanting, one of the balance wheels is gone and there result disturbance and distortion of the nutritional rhythm. For it must be remembered that in dogs with the pancreas completely extirpated and with a complete exclusion of carbohydrate food from the diet the excretion of sugar still goes on, and furthermore bears a certain distinct ratio to the nitrogen excreted through the urine.[5] In other words, under the above conditions, the amount of sugar excreted bears a direct ratio to the amount of proteid or albuminous matter decomposed in the body. The ratio of dextrose to nitrogen in the urine is approximately as 3:1, and it is evident from many experiments that after complete extirpation of the pancreas practically all of the sugar that results from the breaking down of proteid is excreted through the urine. The body is not able to utilize any of it. This inability of the body to utilize sugar under these conditions applies equally to sugar that may be introduced with the food. Let me illustrate this statement by citing an experiment reported by Minkowski.[6] A dog weighing about twenty-eight pounds with pancreas extirpated and on a meat diet excreted through the urine on the seventh and eighth days after the operation 53 grams and 58 grams of sugar respectively. On the following day 75 grams of dextrose were given with the food, when the excretion of sugar through the urine rose at once to 144 grams for the day. Two days after this, on the meat diet alone, the sugar excreted by the urine fell to practically the original amount, *viz.*, 54 grams.

Especially interesting are the experiments recorded by various workers on the transplanting of pieces of pancreas under the skin. When such pieces are well grafted, then the entire pancreas of the animal can be removed from the abdominal cavity without the appearance of diabetes. When, however, the engrafted pieces of pancreas are cut away, glycosuria speedily shows itself. So here, again, we find evidence that no direct connection exists between the ordinary secretory function of the pancreas and that other function which has to do with the utilization of sugar by the body.

If we examine more closely the experimental data which have been gradually accumulated during the past six or eight years, we find additional light thrown upon the problem, although it does not afford a concise explanation of the cause of pancreatic diabetes. In the first place, we are certainly justified in saying that the glycosuria resulting from extirpation of the pancreas is not wholly due to increased transformation of the glycogen stored up in the liver and other tissues. Directly after the operation the sugar which appears in the urine undoubtedly comes from conversion of the hepatic glycogen, but, as already stated, the excretion of sugar continues at a high rate long after the glycogen of the body has entirely disappeared. Further, the ratio of sugar to nitrogen in the urine is such as to point conclusively to the origin of the sugar in proteid. In this respect, therefore, pancreatic diabetes resembles phloridzin diabetes. It differs from the latter, however, in that when the pancreas is completely removed the sugar of the blood is greatly increased, followed by the appearance of sugar in the urine. In phloridzin diabetes, on the contrary, there is no noticeable increase of sugar in the blood, although the urine may contain large quantities of sugar. When the floor of the fourth ventricle is punctured, temporary glycosuria results, and in this case there is a marked increase in the sugar of the blood, thus showing an analogy to pancreatic diabetes. Probably in both puncture diabetes and pancreatic diabetes this initial rise of sugar in the blood is connected with increased transformation of hepatic glycogen, while later on the sugar in pancreatic diabetes comes from the breaking down of proteid. It has been claimed by some physiologists that under normal conditions the pancreas exerts its influence upon carbohydrate metabolism by aiding in some manner the oxidation of sugar in the tissues of the body, or else by influencing the conversion of the sugar brought by the portal blood into the glycogen of the liver. While one or perhaps both of these views may be correct, it is manifest that complete loss of the pancreas leads to much more than a mere disturbance of the relationship between sugar and glycogen formation. Some other explanation must be offered to account for the steady breaking down of the tissue proteids after removal of the pancreas. Moreover, the view that the glycosuria is due to the absence from the blood of the glycolytic ferment normally present there is equally untenable, since, as Minkowski has shown, removal of the pancreas does not change in any degree the glycolytic power of the blood. Again, it has been found that, so far as can be observed, the blood of an animal from which the pancreas has been removed shows no accumulation of toxic substances; in any event, such blood has no power of rendering another animal diabetic. This fact, of course, stands opposed to the theory that it is normally the function of the pancreas to remove from the blood toxic substances formed in the body, and that the cause of the diabetes resulting when the pancreas is removed is due to an accumulation of such toxic bodies. Another fact of importance just here is that feeding raw pancreas does not check or prevent the usual symptoms attendant upon complete extirpation of the gland. The case is evidently quite different from what occurs in thyroidectomy, where feeding of thyroid is effective in counteracting the removal of the thyroid glands. It is plain, however, that there is something belonging to the pancreatic glands which is instrumental, directly or indirectly, in controlling the formation or utilization of sugar in the body.

To a physiological chemist, the auto-intoxication theory of pancreatic diabetes seems especially plausible, and although the facts to uphold such a theory are not very numerous, and those presented lack confirmation, yet the theory is perhaps worthy of consideration. In this connection it is to be remembered that Gaglio[7] some years ago claimed that excision of the pancreas was not followed by diabetes if the thoracic duct were ligated, and further that ligature of the thoracic duct checked the glycosuria produced by extirpation of the pancreas. Lépine[8] and Biedl,[9] on the other hand, claim that ligature of the thoracic duct tends to increase, instead of checking, the glycosuria caused by excision of the pancreas, and Biedl further states that a pre-existing glycosuria can be inhibited by the injection of thoracic lymph. With this utter lack of harmony the truth seems beyond reach, but now comes Tuckett[10] with the hypothesis that the pancreas has an internal secretion which enters the circulation constantly, *via* the thoracic lymph, and also that a toxic substance capable of causing glycosuria, if not neutralized by the former, is absorbed from the intestine during digestion, *via* the lymph-stream. The hypothesis further supposes that the thoracic lymph contains a large quantity of the aforesaid toxin during digestion, but none at other times, whereas only a small quantity of the internal secretion from the pancreas is ever present in the thoracic lymph, although the blood always contains a relatively large quantity, as it tends to accumulate there continuously. Tuckett rests his theory upon the following observations: He finds that if the thoracic lymph from a fasting dog be injected into the portal circulation of a cat, no hyperglycemia or glycosuria results, but that if lymph from a digesting dog be injected into the portal circulation a hyperglycemia of a degree varying from 0.3 per cent. to 0.9 per cent. is produced and a glycosuria of a degree varying from 1 per cent. to 9 per cent. He also reports that the injection of thoracic lymph from a digesting cat into its own splenic vein results in marked glycosuria, due, as he thinks, to a large dose of the hypothetical toxin acting on the liver at one time, before it can be neutralized by the internal secretion from the pancreas. Gley,[11] it will be remembered, has found that glycosuria results after ligating the veins of the pancreas, and Tuckett finds that the mere injection of a few bubbles of air into the splenic vein is followed by pronounced glycosuria, the air accumulating chiefly in the splenic and superior pancreatic-duodenal veins. This glycosuria, he thinks, is really due to the same cause as that produced by Gley, *viz.*, by an impeding of the venous return through the pancreas, thus checking the outflow of the internal secretion from the gland, and thereby allowing the toxin to accumulate in the blood. This ingenious theory, which seems to have some foundation in fact, we cannot follow further, but it is well worthy of more careful study.

As has already been stated, there are to be found in the pancreas groups of cells, known as the islands of Langerhans, which are not connected with the lumen of the ducts of the gland, and which are evidently not concerned with the manufacture of pancreatic juice. These cells are surrounded by or intermingled with a rich network of capillaries, and from their structure and their environment the view has been advanced that these cells, or groups of cells, furnish an internal secretion which is passed on into the blood and lymph. There is certainly a close resemblance in architecture between the islands of Langerhans and that of other ductless structures, such as the thyroid, suprarenal and similar glands, and various writers, as Schäfer,[12] Diamara[13] and Laquesse[14] have put forward the view that the influence exerted by the pancreas on carbohydrate metabolism is to be traced to these groups of cells. Ssobolew[15] has indeed pointed out that the cells composing the islands of Langerhans undergo a change of structure—becoming more granular—when animals are fed on a carbohydrate diet, and he has also observed that in dogs on ligating the duct of Wirsung the islands of Langerhans are not involved in the sclerotic process that ensues. Opie[16] has likewise observed in human cases when obstruction of the duct has occurred that the islands are resistant to the inflammation which usually follows. All this of course is construed as indicating the physiological individuality of the cells composing the islands, and as perhaps suggesting that they alone have to do with carbohydrate metabolism. Opie,[17] who has made a careful study of the histological structure of the pancreas in man and in animals, states distinctly that the cells composing the islands are independent of the secreting apparatus of the pancreas, and are in intimate relation with the vascular system. Later,[18] he is led to the conclusion from the observation and examination of cases in the Johns Hopkins Hospital and Pathological Laboratory that destruction of the islands of Langerhans is associated with diabetes mellitus. This statement may perhaps be amplified by the assertion that whenever there is a lesion of the pancreas, involving a destruction of the islands of Langerhans, diabetes results. Finally, I may call attention to the work of Flexner on "Experimental Pancreatitis."[19] This investigator finds "that pancreatitis follows upon a variety of insults to the pancreas, and is capable of developing with great rapidity. The introduction of such a foreign body as artificial gastric juice into the pancreas gives rise to degeneration, hemorrhage and emigration of leucocytes within the brief space of one to two hours." Also, "fat necroses attend all forms of pancreatitis and are more numerous and widespread the more acutely the pancreatic lesions develop." Flexner likewise calls attention to the rapidity with which glycosuria develops after these insults to the pancreas. Thus, in one experiment, when defibrinated blood (20 c.c.) was injected into the duct of Wirsung of a dog, the urine showed sugar in thirty minutes. In my own laboratory, the injection of defibrinated blood from a dog into the duct of Wirsung of the same animal has been followed by the appearance of sugar in the urine within fifteen minutes from the beginning of the injection, the urine in this case being collected through cannulæ previously introduced into the ureters.

There are undoubtedly many ways in which glycosuria results, many causes leading to the temporary and continued appearance of sugar in the urine. The injection into the blood of β-nucleoproteid, as Ivar Bang[20] has recently shown, leads to the excretion of sugar in the urine, and, as the proteid likewise causes a marked though temporary fall of blood-pressure, the cause of the glycosuria may perhaps be sought for in some localized change of vascularity. Finally, in this connection, it is worthy of note that Blum[21] has just recorded the presence in the suprarenals of a substance which on introduction into the circulation produces glycosuria; a substance which is effective not only when the liver of the animal is stored with glycogen, but also when the hepatic cells are free from carbohydrate, as in hunger.

In conclusion, I may add that while the pancreas has this marked influence upon the metabolism of carbohydrate matter, and while disturbance of the gland, or any insult offered to it, may result in temporary or permanent glycosuria, there are indications that some forms of so-called pancreatic diabetes are to be explained, not through a simple disturbance of the pancreas, but rather as the result of a physiological disturbance of the inter-relationship of several allied glands or structures.

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SOME ASPECTS OF THE PATHOLOGY OF THE PANCREAS FROM THE STANDPOINT OF RECENT INVESTIGATION.

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It is obviously impossible in one paper to cover satisfactorily the ground of the pathology of the pancreas. It would seem more desirable, therefore, to limit ourselves to the discussion of some phases of pancreatic disease in which recent research has been fruitful. I therefore purpose to take up from the standpoint of the more recent work (1) the relation of lesions of the pancreas to diabetes; (2) the conclusions to be drawn from recent studies of acute hemorrhagic and suppurative pancreatitis as regards the etiology of these conditions and their relation to gall-stone disease, to chronic intestinal pancreatitis, and to fat necrosis.

Our knowledge of the results of disease in an organ is necessarily dependent on our knowledge of the intimate structure and function of that organ. In the consideration of diabetes it is particularly necessary to remember that the pancreas is a much more complicated structure than are the salivary glands which it resembles. The well-known researches of Langerhans showed that the pancreatic tissue consists of two distinct classes of parenchymatous structure, the ordinary gland acini which secrete the digestive juices of the organ and empty into the pancreatic ducts, and the so-called islands of Langerhans, which differ in appearance and structure from the ordinary gland acini. Ssobolew, Opie, and others have shown that, though we have every reason to believe that the islands of Langerhans have the same origin as the ordinary gland tissue, during extra-uterine life they have no connection with the secreting portion of the gland. Opie shows that they have no connection with the excretory ducts of the organ and that their cells are in intimate relation with the blood-supply, each island being furnished with a vascular arrangement somewhat similar to that of a kidney glomerulus. Without going deeply into the subject of the relation of the pancreas to metabolism I would simply remark that the relation of the organ to carbohydrate digestion suggests that it possesses an internal secretion. Schafer and Diamase first suggested that it is the islands of Langerhans which provide this secretion, a view which is strongly upheld by Ssobolew and Opie.

The modern conceptions of the relation of the pancreas to diabetes date from the classical experimental work of Von Mering and Minkowski. The observations of these workers, since abundantly confirmed, showed that in dogs the total extirpation of the pancreas regularly gave rise to a disease resembling in every way diabetes mellitus as seen in the human subject. Some writers, as Reale and De Renzi, could not confirm the statement that these symptoms followed in all cases, but practically all competent observers concede their occurrence in the great majority of dogs from which the pancreas has been removed. Experimental work by various authors has likewise shown that partial extirpation is followed by glycosuria or a mild form of diabetes, an indication that in man also mild grades of diabetes may be due to pancreatic disease. When from one-quarter to one-fifth of the gland is left no glycosuria ensues. That the experimental diabetes following total extirpation of the pancreas is not due to the injury to neighboring nervous structures is shown by the fact that its development can be hindered by the transplantation of pancreatic tissue beneath the skin of the abdominal wall. Inasmuch as in these cases the normal secretion of the pancreas is not discharged into the digestive tract, this also shows that diabetes is not due to a lack of the pancreatic juice and renders probable the supposition that, besides the pancreatic juice, the pancreas furnishes an internal secretion.

Satisfactory as are these experimental data, many puzzling problems confront us in the study of the pancreas in human beings who have come to autopsy after death from diabetes. Aside from those cases which are evidently due to lesions in the medulla, we find that the study of the pancreas in the remainder shows two groups of cases which are difficult of explanation. On the one hand, we have a good many cases of diabetes without perceptible pancreatic lesion, and, on the other, cases of complete destruction of the pancreas without diabetes.

Of 88 cases of diabetes collected by Hansemann, Bloch and Oser, 28 showed no demonstrable pancreatic lesion. These same writers collected 139 cases of extensive pancreatic disease without diabetes.

The recent work of Ssobolew, Wright and Joslin, and particularly of Opie, throws a good deal of light on the apparent contradictions which these figures suggest. It is undeniable that in their microscopic studies of the pancreas the earlier writers paid little attention to the condition of the islands of Langerhans. If, as is now supposed, these structures play an important part with regard to the internal secretion of the pancreas, it becomes at once apparent that their condition is of extreme importance. The work of Opie and of Wright and Joslin has, in fact, shown that in a certain proportion of cases of diabetes the islands of Langerhans are extensively changed, while the great mass of the gland is to all intents and purposes normal. I have myself recently studied a pancreas from a case of diabetes kindly sent to me by Dr. Libman of New York in which practically the only change found in the organ was the hyaline degeneration of the islands of Langerhans described originally by Opie. Is it not fair to assume that, in a certain proportion of the cases described by the older writers as without pancreatic lesion, these changes were present? The experience of Wright and Joslin, who found such changes twice in nine cases, would indicate, however, that all such observations cannot be explained in this way; the recent work of Schmidt would also indicate this.

The work of Opie on interstitial pancreatitis also explains why in this class of cases very extensive destruction of glandular tissue may occur without diabetes. He classifies interstitial pancreatitis into an interlobular and an interacinar form. In the interlobular, even when the disease has involved the greater portion of the organ, the islands of Langerhans are not involved. In the interacinar form they are gradually encroached upon and destroyed by the newly-formed connective tissue, but even here it is only late in the disease that they become extensively involved.

Some of the cases in which, to the naked eye, there is apparently complete destruction of the pancreas by a neoplasm and yet no diabetes has been shown under the microscope, by Hansemann particularly, still to contain areas of pancreatic tissue; but whether in such cases the islands of Langerhans are especially spared remains to be shown. In other instances in which the complete replacement of pancreatic tissue by new growth is demonstrated, both macro- and microscopically, and yet diabetes does not occur, explanation is more difficult. Hansemann has advanced the idea that the tumor cells, being direct descendants of the pancreatic cells, inherit from them the power of elaborating an internal secretion. Oser does not consider this theory convincing, but after all it does not seem so far-fetched, inasmuch as we are already acquainted with instances of tumor cells elaborating secretions of the character of those supplied by the organs from which they sprang. Niedrich, Bock and Thoma have all described metastatic adenomata of the liver in which a substance resembling bile was secreted by the tumor cells. In Bock's case this substance was chemically examined and found to contain large quantities of biliverdin. It would be interesting to observe in pancreatic tumors whether any type can be differentiated which has the appearance of originating from the cells of the islands of Langerhans, rather than from the glandular structure or the epithelium of the ducts. It would seem possible that the question of the production of an internal secretion by the cells of pancreatic tumors could be cleared up by the physiological chemist.

It seems evident that the study of the islands of Langerhans in diseases of the pancreas, and in diabetes particularly, is yet in its infancy, or at least in its childhood, and it is reasonable to hope that further study will render still more clear this hitherto obscure field.

The subject of the relation of the various forms of pancreatitis to one another and to various etiological factors has until recently been more or less obscure and has given rise to numerous hypotheses. Leaving aside metastatic suppurative pancreatitis, which is obviously the result of a general septico-pyemic condition, the various authors writing on primary pancreatitis have had before them for elucidation the following problems: (1) The relation of pancreatitis to bacterial action and to chemical irritants; (2) the relation of pancreatitis to gall-stone disease; (3) the relation of hemorrhagic pancreatitis to suppurative and necrotic pancreatitis; (4) the relation of all forms of acute pancreatitis to chronic pancreatitis and to fat necrosis.

It is obvious that in order to trace, step by step the mechanism of the various processes under consideration it was necessary to resort to the experimental method.

Injection of various bacteria either into the duct of Wirsung or into the parenchyma of the pancreas has resulted in many instances in pancreatitis, rarely hemorrhagic, generally suppurative or of a chronic inflammatory character. Various micro-organisms have produced these effects, the most important being the diphtheria bacillus (Hlava, Flexner), the colon bacillus (Hlava), and the bacillus pyocyaneus (Flexner). These experiments merely indicate the possibility that in some human cases an ascending infection by means of the pancreatic ducts may account for certain forms of pancreatitis.

The production of pancreatitis by means of chemical irritants dates back to the time of Claude Bernard, who produced experimental suppurative pancreatitis by the injection of quicksilver into the ducts. Since his time various chemicals of an irritant nature have been injected by various observers. Korte used turpentine, Carnot chloride of zinc, and Katz and Winkler sulphuric acid. This aspect of the subject was mostly thoroughly worked out by Flexner, who used a large variety of irritating chemicals, some acids, some alkalies and still others intensely irritating substances, such as formalin. The results of these various experiments may be briefly summed up by stating that all forms of pancreatitis were produced by the action of one or the other of the chemicals used.

Regarding the relation of chemical irritants to human pancreatitis, a step in the right direction was taken by Hlava when he suggested that in individuals with a hyperacid gastric juice this might be carried up the pancreatic ducts by antiperistaltic movements and set up pancreatitis. He as well as Flexner and Carnot, showed that artificial gastric juice injected into the ducts produced well-marked pancreatitis. In spite of the attractiveness of Hlava's theory, the chances that such a mechanism can occur in human beings seems extremely slight. Nevertheless, the principle that pancreatitis in human beings can be produced by the introduction into the pancreatic ducts of chemical substances normally secreted by the body cells has recently been placed upon a firm basis by Opie.

Opie's observations were based upon a patient with gall-stones in whom hemorrhagic pancreatitis developed. At autopsy it was found that a small stone lodged in the ampulla of Vater had blocked the orifice of that portion of the duct common to the bile and pancreatic juice, but had not shut off the lower end of the common bile duct or of the pancreatic duct. As a result of this the bile and pancreatic ducts formed a continuous passage, the latter duct showing evidences that bile had been present in it in the form of bile-staining, a result which, as Opie has pointed out, might be expected on account of the fact that the bile is under greater pressure than is the pancreatic juice. As a result of this observation, as well as of the knowledge of quite frequent association between gall-stones and pancreatitis, Opie conceived the idea that bile is capable of setting up a hemorrhagic pancreatitis. A study of the literature on the pathology of hemorrhagic pancreatitis showed that the majority of the recently reported cases showed gall-stones, and the anatomical relations of the two ducts are known to be such that a small stone in the ampulla could in a certain percentage of cases block the external orifice in the papilla without obstructing the intestinal end of either duct. Opie's suggestion that the bile could set up hemorrhagic pancreatitis was proved experimentally by himself and has since been confirmed by Flexner.

The great point of dispute regarding the relation of hemorrhagic lesions of the pancreas to inflammatory lesions has been with regard to the priority of the two processes. Until the recent work of Flexner and Pearce the question as to whether the hemorrhage or the inflammatory processes occurred first has been in doubt. The experiments of these authors show without doubt that hemorrhagic, degenerative and inflammatory lesions are all correlated; the several phenomena may all occur at the same time, and that only a few hours after the action of the irritant. The experiments further show that the presence of blood alone in the pancreatic tissue is incapable of setting up inflammatory reaction.

The relation of these various forms of acute pancreatitis to chronic interstitial pancreatitis can be summed up in a few sentences. Both experimental and postmortem observations seem to show that when animals or individuals recover from the direct effects of the various irritants discussed, the connective tissue of the pancreas proliferates, newly formed connective tissue is produced and a chronic induration of the organ results. There seems no doubt that in many cases of cholelithiasis a quantity of bile insufficient to cause extensive lesions frequently escapes into the pancreas, and that the well-known induration of the head of the pancreas, which has been so frequently observed by surgeons in gall-stone operations, is the result. In one case at least Mayo Robson has demonstrated this on the postmortem table.

There remains for our consideration the subject of fat necrosis and its relation to these various processes. The more prominent of the older theories regarding the formation of this form of cell death assumed the lesion as due either to the action of bacterial products or to that of trypsin. The relation of bacteria to fat necrosis has been most carefully studied within the last year by Marx. He concludes that the evidence against the production of fat necrosis by bacteria is very strong. The presence of micro-organisms in fat necrosis is inconstant, and those generally found are organisms known to wander into the tissue postmortem. Furthermore, attempts to produce fat necrosis experimentally by means of bacteria or their products have been almost uniformly unsuccessful. The results of experimental work with trypsin have likewise been many of them negative. It can now be safely said that the demonstration that the action of steapsin, the fat-splitting ferment of the pancreas, is the true cause of fat necrosis is convincing. The presence of this ferment in the lesions of fat necrosis was first demonstrated by Flexner, and his observations have since been confirmed by Opie and others.

The histology of these lesions has also been carefully worked out in this country by Williams, Flexner and Opie. The lesion consists in a splitting-up of the fat into glycerin and fatty acids, the former being absorbed, the latter entering into combination with lime salts to form a soap. Surrounding the area of necrosis is found a zone of inflammatory reaction of the tissues. While these researches do not absolutely reveal the mechanism of the distribution of the steapsin, which may act on fat so distant even from the pancreas as the pericardial fat, they simplify greatly the relationship between disease of the pancreas and fat necrosis in that they show that any pancreatic lesion which allows of the escape of the fat-splitting ferment may give rise to fat necrosis.

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HEMORRHAGIC PANCREATITIS; OPERATION; RECOVERY.

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SIR THOMAS WATSON, writing in 1857, in the fourth edition of his "Principles and Practice of Physic," dismisses the subject of diseases of the pancreas with a scant fourteen lines. To-day the story of the physiology and chemistry of the pancreas forms a most fascinating chapter; and the amount of clinical and pathological work already done marks a real advancement in medicine. The literature of pancreatic surgery, however, is small but growing, and as a contribution to this part of the subject I wish to record the following case:

T. D., forty-one years old, an employe in a leather factory, was first seen by me September 24, 1901. His family history is unimportant. Six years ago he had an illness lasting eight days which began suddenly with pain in the abdomen; there was no vomiting, but the pain was severe all one night and was relieved by a movement of the bowels. About fifteen years ago he had attacks of pain, due, his physician told him, to gall-stones; the pain was never severe and yielded promptly to medicine. He was never jaundiced. He drinks occasionally, but was never an habitual user of beer or spirits. The present illness began suddenly on the afternoon of September 17th. While at his work he was taken with severe pain in the abdomen, accompanied by nausea and vomiting. A physician was called, who gave him morphine hypodermically and ordered him sent home. From the 18th to the 24th there was continued fever ranging from 100 to 102°F., and a pulse-rate of about 100. The bowels were constipated, but there was no further vomiting; there was some nausea and some eructation. He had been given cathartics and high rectal injections, the case having been at first looked upon as one of fecal obstruction. The urine was diminished in amount, but contained neither albumin nor sugar. On the 24th the temperature and pulse were as just noted, and there was anxious expression, pain and tenderness in both iliac regions and across the upper part of the abdomen, but no distinct dulness and no marked distention. The pain was rather more severe in the region of the transverse colon than in the flanks. I did not make a diagnosis, but from the history of the case, the mode of onset, etc., was inclined to regard it as a general peritonitis, probably originating in the appendix. On the 26th the record at 9 A.M. was: Pulse 102, temperature 100.5° F. At 3 P.M. there was a sudden and severe exacerbation of pain, and an hour later well-marked symptoms of shock and collapse—pale, pinched face, cyanotic lips, and pulse of 150 and weak. At this time the abdomen seemed somewhat flat and there was noticed for the first time some enlargement in the epigastric region. On the 27th, the pulse was 123, temperature 100.2° F. Until the 30th his condition remained about the same—no vomiting, no appetite; pulse 100 to 112; pain almost constant, but not severe, and most marked in the region of the transverse colon. The tumor-like mass in the epigastrium was persistent and tender, easily palpable, and visible upon careful inspection; there was dulness upon percussion, beginning just above the umbilicus and seemingly continuous, with the liver dulness above and to the right. At a second visit upon this date I could get with fair distinctness a resonant or tympanitic note between the tumor and the left lobe of the liver above. With this ability to separate the mass from the liver there came the thought of pancreatitis, and with a careful review of the history of the case the diagnosis of hemorrhagic pancreatitis was made and operation advised.

Operation October 1st. The abdomen was opened by a median incision over the tumor. The omental vessels looked darker and more congested than normal, and minute masses of fat necrosis in considerable numbers were visible in the omentum and were also found in the mesentery. With the abdomen open the tumor seemed smaller and less distinctly circumscribed than was apparent upon examination before incision. The stomach and transverse colon were easily recognized and separated and the omentum was opened between them; the pancreatic tumor was then bluntly dissected through in about the middle line. Masses of dark blood-clot presented, together with some necrotic masses of gland tissue. The cavity in the pancreas was washed out with salt solution, the amount of blood-clot removed being estimated at from six to eight ounces in volume. The cavity seemed to be somewhat smooth-walled and larger to the right (head of the pancreas). There was no hemorrhage. The wound was dressed with a rubber drainage-tube and gauze packing. Following the operation there was a gradual improvement in the patient's general condition. During the first ten to fourteen days the discharge was profuse and frequently contained evident necrotic portions of gland tissue with large and small masses of necrotic fat; later the discharge became more evidently purulent. The abscess cavity still seemed large, elongated horizontally, and dipping down on either side of the large vessels. On November 8th the patient left the hospital. There was still a slight evening rise of temperature; the sinus was unhealed and contained a drainage tube, and the wound was dressed every day at home. The drainage of the sinus was not good, however, and on the 18th of the same month he was readmitted to the hospital with a temperature of 103.8° F. and pulse of 120. On the 20th the sinus was enlarged and a new sinus, or branch of the original one, extending to the left toward the tail of the pancreas, was entered and drained. By December 3d the pulse and temperature were normal and by January 16th the wound was entirely healed.

The diagnosis of this case should have been made earlier. It seemed clear enough—clearer than most cases, perhaps, when once it had been thought of. The second attack of severe pain with collapse, indicating probably a second hemorrhage, and the coincident discovery of the tumor, should have suggested the diagnosis. The tumor dulness, however, being most of the time continuous with the liver dulness above and toward the right and left, seemed to call attention to the liver rather than to the pancreas.

Reviewing the history of the case after operation the thought of *ample drainage* is the one to be most emphasized; in draining such a cavity as here existed the external opening left for tubes and packing should be of goodly extent and a tube should be passed down to both extremities of the cavity. Another minor point which seems worth mentioning is the character of the drainage-tubes. After the first dressing, instead of the ordinary rubber tubing with cut-off ends, I used the ends of stomach tubes; these furnished tubes of good size and with smooth rounded ends. In a recently-reported case of a somewhat similar operation, there was found at autopsy an opening from the sinus into the duodenum, which was thought to be due to a pressure necrosis from the drainage-tube.

THE SIGNIFICANCE OF GLYCOSURIA.*

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THE significance of glycosuria can best be comprehended by a discussion of its pathogenesis. I shall consider all forms of glycosuria under two headings, transient glycosuria and the glycosuria of diabetes mellitus, as all forms can not come within the scope of this paper.

By the term transient glycosuria we understand the temporary appearance of glucose or grape-sugar in the urine, usually in small quantity. When sugar appears it is derived as such from the blood. Normally the blood contains a small but constant proportion of sugar, 0.1-0.2 per cent., and when this amount is exceeded there is an overflow into the urine. Whether normal urine contains minute traces of sugar is a moot point. The reaction for sugar with normal urine is not obtained except after concentration by evaporation. Hence for clinical purposes we may assume that normal urine is sugar-free.

The causation of the majority of cases of glycosuria will remain a matter for conjecture until the disposition of sugar in its entirety in the organism and the control of this disposition become known.

Transient glycosuria is a symptom of some temporary interference with the usual disposition of sugar in the body or of its excessive ingestion. The following varieties may be recognized: (1) Alimentary; (2) toxic; (3) forms associated with diseases and injuries.

1. *Alimentary.*—The sugar which reaches the liver from the intestines through the portal vein is converted by the activity of the hepatic cells into glycogen. Thence it passes out, a little at a time, reconverted into dextrose, into the general circulation. This, in brief, is the glycogenic function of the liver. Within varying, though wide, limits, the liver can dispose of only a given quantity of sugar. It is in this manner that alimentary glycosuria arises and it is not of infrequent occurrence in persons who indulge to excess in starchy and saccharine foods. The excessive ingestion of cane-sugar produces saccharosuria, associated in the majority of instances with glycosuria. Cane-sugar, grape-sugar, and milk-sugar, taken in quantities of from 50 to 250 grains, pass directly into the urine, causing temporary glycosuria (Worm-Mueller). Linnoissier and Rogue experimented on nineteen healthy individuals, confirmed the above results and found that cane-sugar passes more readily into the urine than grape-sugar, and grape-sugar more rapidly than milk-sugar. Howell states, however, that the limit of assimilation of milk-sugar is soon reached in the human adult and that it readily passes into the urine unchanged (lactosuria).

The lactosuria which is present at times in pregnant and nursing females must be classed under the heading alimentary, since it occurs because the milk sugar which is formed in the breast is reabsorbed into the circulation. Glycosuria is especially likely to occur in nurslings with digestive derangements (Grosz).

2. *Toxic Glycosuria.*—This term will include those conditions of the urine which occur not infrequently after the administration of certain remedial agents in which either sugar itself is present or some substance which responds similarly to many of the tests for sugar, and which might thereby lead to erroneous deductions. The subject presents a wide field for research.

It seems well assured that in certain instances the reducing agent is not sugar. Chloroform, chloral and arsenic *per se* reduce Fehling's solution. Chloroform and arsenic are excreted in the urine as such. The minimum amounts of chloroform, chloral and arsenic which give a slight reaction with Fehling's solution are about 2 c.c. of solutions containing from 0.1-0.15 per cent. of these substances. It is probable that the glycosuria reported as occurring after their administration is the result of faulty observation. Moreover, glycuronic acid is present in the urine after chloroform narcosis, which in itself reduces Fehling's solution. Chloral is rarely found in the urine or occurs only in traces. It is eliminated as urochloralic acid. This acid, however, will reduce Fehling's solution. After the administration of morphine and curare the urine contains glycuronic acid.

The following substances are stated to produce actual glycosuria as a result of their action in the body: Ether by inhalation, amyl nitrite, mercury, hydrocyanic acid, sulphuric acid, alcohol, glycerin, strychnine and nitrobenzol. Phlorizin produces temporary glycosuria, according to Von Mering, by causing such changes in the renal cells that they are no longer able to hold back the sugar normally present in the blood. The exhibition of thyroid substance may also produce glycosuria.

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* Read at a meeting of the Section on General Medicine of the New York Academy of Medicine, April 15th, 1902.

The glycosuria occurring among those who have worked long in lead is believed to result from the direct action of the lead on the renal cells.

3. *Glycosuria Associated with Diseases and Injuries.*—All forms of transient glycosuria which are met with during the course of or following general disease, or which result from injuries, derangements or diseases of the nervous system will be included under this heading.

Von Mering has shown by direct examination of the blood of the portal vein that the sugar formed from the carbohydrates in the alimentary tract is absorbed by the blood-vessels under normal conditions. In cases of portal thrombosis glycosuria occurs if there is any digested starch in the intestine. The glycogenic function of the liver is not called into play, the sugar passes unchanged through vessels other than the portal into the general circulation, and is excreted by the kidneys.

According to Hoffmeister, the function of sugar assimilation may be depressed in certain diseases, so that when sugar is taken as a food it appears temporarily in the urine. This happens especially in hepatic fibrosis. Transient glycosuria may occur at times as a result of digestion derangements and in chronic gastritis (Frerichs).

Transient glycosuria not infrequently occurs in the course of, or following many of the infectious diseases. Thus sugar may be found in the urine in cerebrospinal meningitis, Asiatic cholera, typhoid fever, etc. Transient glycosuria occurs occasionally after asthmatic paroxysms and attacks of whooping-cough. No explanation of these appearances has been offered.

Sugar is occasionally met with in the urine in diabetes insipidus, due, probably, to alimentary glycosuria. Ord states that transient glycosuria occurs in chronic interstitial nephritis, and sometimes with angina pectoris.

The frequent occurrence of intermittent glycosuria in gouty individuals will only be mentioned in this connection. Temporary glycosuria has been reported as occurring in the early incubation stages of syphilis.

Transient glycosuria may occur after many injuries to the nervous system and in association with many nervous diseases. It was shown by Claude Bernard that puncture of the floor of the fourth ventricle in the region of the vasomotor center causes the appearance of sugar in the urine. The glycosuria is of temporary duration and is believed to arise through the nerves regulating the glycogenic function of the liver, not through vasomotor influences (Foster).

Von Jaksch has concluded that transient glycosuria is a constant symptom of some functional neuroses, such as Charcot's grand hysteria and the traumatic neuroses. In fact, he believes that this symptom might be of value in differentiating traumatic neurosis from simulation.

Among other abnormal conditions of the nervous system in which glycosuria may occur, we find the following: Cerebral hemorrhage from external violence or other causes; hemorrhage into the pons Varolii and spinal bulb; cerebral softening, cerebral tumors, cerebral parasites, cerebral abscess; disseminated sclerosis, concussion of the brain; injuries to the vertebral column; epilepsy, insanity; neuralgias generally; hysteria, severe psychical derangements, mental emotion; and exophthalmic goiter.

In cases of cerebral hemorrhage the amount of sugar in the urine will vary from a few to more than 100 grams per day, in accord with the intensity of the shock and the location of the injury (Lancereaux). Higgins and Ogden state that the sugar may appear as early as six hours after the hemorrhage and disappear within twenty-four hours, the average time for its appearance being from eight to twelve hours, and for its disappearance from the fifth to the ninth day. Sometimes the glycosuria persists for four or five months. It should be stated here that certain lesions of the nervous system may produce permanent glycosuria, accompanied by all the symptoms of diabetes mellitus.

Gout.—Sir Dyce Duckworth says: "No fact in practical medicine is better established than the dependence of a variety of glycosuria on the gouty habit of body." Gouty glycosuria does not appear generally till toward the middle period of life, and is more likely to develop in irregular or so-called suppressed types of gout. The patients are usually well developed and corpulent. Active manifestations of gout and glycosuria do not coexist. When glycosuria appears the tendency to paroxysmal joint attacks ceases. When the glycosuria disappears gouty symptoms often reappear, such as eczematous eruptions or pains in the joints.

Gouty glycosuria is not a grave affection and yields readily as a rule to dietetic and other treatment. Oftentimes the first indication of its existence is an accidental discovery of the presence of sugar in the urine. On the other hand, mild symptoms may present themselves, such as an increase in the quantity of urine, frequency of micturition, an unusual though not immoderate thirst, and, in the case of women, a persistent itching of the vulva.

Obesity and glycosuria are frequently associated. This glycosuria is at times undoubtedly of alimentary origin. In other cases the relation is of a more profound nature, and glycosuria is dependent upon faulty action of the liver or perverted metabolism in the tissues.

Diabetes when occurring in the obese is generally called lipogenous. Van Noorden has suggested the term diabetogenous obesity. "The obesity masks the diabetes." Upon this theory the diabetic habit, so to speak, antedates the appearance of sugar in the urine.

Diabetes rarely appears in corpulent persons before the fortieth year. It is almost always mild in character and yields readily to treatment. In certain cases, however, the mild may pass into a grave form accompanied by gradual loss of fat and actual emaciation. Generally the fat and the diabetes persist together. The influence of heredity is prominent in the association of diabetes with obesity. In many cases we find diabetes related to both gout and obesity. In an analysis of 600 cases of diabetes by Schmitz, there were 35 of diabetogenous obesity, and it was thought that many of these were of the gouty variety.

Lesions of the Pancreas.—To Bouchardat (1851) belongs the credit of having first directed attention to the association and causative relation between certain cases of diabetes mellitus and lesions of the pancreas. More recently the number of cases of diabetes mellitus found postmortem to have been associated with lesions of the pancreas has been constantly increasing. These lesions are secondary atrophy from various causes, as calculi and occlusion of the duct of Wirsung from pressure, primary atrophy, fibrous induration, interstitial lipomatosis, abscess, cysts, carcinoma, acute inflammation, hyaline degeneration of the islands of Langerhans and hemachromatosis with secondary atrophy of the pancreas and hypertrophic cirrhosis of the liver (the bronzed diabetes of Hanot).

Opie divides the chronic inflammations of the pancreas into two forms, interlobular and interacinar. In the interlobular type, the islands of Langerhans are affected later than in the interacinar variety.

Hansemann states that the most common lesion of the pancreas in diabetes is a form of granular atrophy, corresponding to certain forms of granular kidney. It is essentially the same lesion described by Lépine and Barral as periacinal fibrosis. The pancreas is rarely entirely destroyed by this form of atrophy. Later and more extended observations indicate that secondary atrophies are more frequently associated with diabetes than the primary atrophy of Hansemann.

From a study of cases in the Berlin Pathological Institute and Augusta Hospital, Hansemann has found that the association of diabetes mellitus with lesion of the pancreas occurred more frequently than diabetes alone or disease of the pancreas alone, and in fact more frequently than both combined. He concludes from this study that there is no positive objection to the application of the results of experimental diabetes in animals to man; that complete destruction of the pancreas in man may be assumed to cause diabetes mellitus; that destruction of the pancreas does not produce any special form of diabetes. Diabetes from total extirpation of the pancreas is accompanied by polyuria, polyphagia, polydipsia, and by marked emaciation, and proves fatal within fifteen days or less. It does not occur, however, if as much as one-fifth of the gland is left either in its original situation or grafted under the skin.

The symptoms produced by total extirpation of the pancreas do not depend upon the loss of the pancreatic juice proper to the organism; this secretion may be diverted from the intestine through a pancreatic fistula without the production of diabetes. Lesions of the pancreas which cause diabetes do so through destruction of the islands of Langerhans. These islands are supposed to form the internal secretion of the pancreas.

Lépine ascribed a glycolytic or sugar-splitting ferment to this internal secretion, and sought to prove the existence of such a ferment normally in the blood, the removal of which from the blood deprives the tissues of the power to convert glucose into glycogen or to store it up as fat, and permits the destruction of albumin. Arthus admits the presence of the glycolytic ferment in blood drawn from the body, but contends that it is the product of postmortem changes. In the April number of the *American Journal of the Medical Sciences* Croftan draws the following conclusions from experiments on this subject:

(1) Blood and lymph contain an agent that can destroy sugar.

(2) It is a ferment contained in the white cells, and these cells must undergo destruction before the ferment can develop its powers.

(3) The glycocylitic ferment is trypsin.

Psychic Causes.—Mere reference to these will suffice. Psychic impressions have so often immediately preceded the onset of diabetes mellitus in carefully recorded cases that they have come to be looked upon as an exciting cause of the disease.

Lesions of the Nervous System.—A causative relation undoubtedly exists between lesions of the nervous system and diabetes mellitus. As a general rule, the lesion affects the cerebrospinal axis, though injuries to the sympathetic system, particularly the abdominal sympathetic, have been reported as the determining causes of the disease. In some cases the disease has followed concussion.

Liver Theories.—There are two theories concerning the rôle which the liver plays in the causation of diabetes. One theory supposes a depressed glycogenic function in the liver—that the liver cells are unable to convert the sugar brought to them into glycogen, and that in consequence sugar accumulates in the blood.

The other theory supposes an inability on the part of the liver cells to properly retain glycogen after it has been formed. This too rapid conversion of glycogen into sugar may be brought about in two ways, through increased activity of some ferment, or through disturbance of the trophic nerves to the liver.

Other Glycogen-holding Tissues.—This theory supposes an inability on the part of the muscles, glands and other glycogen reservoirs to appropriate the sugar which is brought to them in the blood, and this even though the glycogenic function of the liver be properly performed.

SOME ETIOLOGICAL FACTORS IN DISEASES OF WOMEN.[1]

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Among the diseases that the human body is heir to those of the female organs of generation are the most often observed. They are less numerous in country places and villages and more flourishing in large cities; they are quite unknown among the wild tribes and thrive largely among the civilized communities. Our gynecological departments are crowded with patients seeking relief from their ailments, and hospitals are overfilled with candidates for respective operations. So frequent is this woman's ailment that it is quite natural for nearly every female to have a "female disease." In the civilization of to-day, the progress of the nations is in inverse ratio to the health of woman. She is by no means the healthy stalwart matron of Sparta or of Rome, but the weak, hysterical lady of the Twentieth Century.

In the barbaric age of ancient Rome, a pregnant woman was shown the highest respect and admiration; citizens knelt before her, covering their faces in reverence when occasionally meeting her in the street. Our civilized communities of to-day have produced the "new woman," who regards childbearing as a partial shame, as a curse, as an intrusion upon her cosmetic world; and not only is this the case with the anemic aristocratic daughter, but with the laboring-class woman of to-day. Every possible means is used to prevent conception, and a successful abortion is regarded as a God-sent bliss.

The *causes* of female complaints could be divided into: (1) Predisposing; (2) exciting; (3) induced or criminal.

Predisposing Causes.—In large cities we see young girls successfully competing with men in trying to gain their livelihood. Hard times have given birth to new types of "factory girl," "machine girl," and these names speak for themselves. At the very beginning of menstruation this girl is spending the prime of her life at the machines or heavy looms, sometimes lifting heavy weights or sitting ten to twelve hours a day in a bent posture, crippling her vital organs in their very development. This hard work does not cease during the menstrual epoch, and as a result of this occupation, frequently lasting for years, we find anteflexed uterus, descensus, metritis, dysmenorrhea, etc.

Habitual constipation of these girls, due to sedentary occupation, also strongly interferes with the functions and development of uterine organs and presents another etiological factor. It brings obstruction to the circulation of the female pelvis and exercises blood-pressure upon the uterus and ovaries. (Cases are on record in which attention to the bowels has greatly modified uterine disorders.)

Exposure, deficient clothing, absence of proper bathing, in fact all the antihygienic surroundings of tenement-house life, are also remote causes of women's ailments of to-day. I have observed a certain aversion for bathing on the part of our working-class girls or women. Bathing—not ablutions—is quite unknown to our working woman of this city, and hence neglect of her own person as a result of it. Our great metropolis lacks accommodations for bathing for this working woman. A great demand for this hygienic improvement is felt in our industrial city, and the establishment of public baths, as well as the improvements of the tenement-house accommodations, is still an unsettled question with our city authorities.

Exciting.—In my clinical records I can trace a history of gonorrheal infection in about twenty per cent. of patients. As a result of such infection we may have in acute stages bartholinitis, urethritis, vaginitis; later on a gonorrheal endometritis, or, what is still worse, a pyosalpinx with a prospective laparotomy, castration of the appendages, or a hysterectomy in a woman yet in her teens. Thus is many a young woman's life early thwarted! Thus is she proclaimed as "sterile" to her family and to mankind. Woe to this woman who can never raise her own offspring!

Syphilis.—The ravages of syphilis are largely found among the prostitutes. During the year of 1892, at the last State census, in the population of the city of New York, estimated at 1,800,000, the number of prostitutes at that time was calculated at 15,500, a showing of one prostitute in about every one hundred and seventeen inhabitants. It has been observed that out of five prostitutes two were affected with syphilis. These facts quite eloquently show the contingent of female infectious diseases in our metropolis. The enormous rate of infantile mortality (83 per cent.) is the direct result of syphilitic infection.

Induced or Criminal Causes.—The art of criminal abortions in this country has reached its climax, and herein lies the etiology of numerous gynecological lesions. If, out of twenty-five normal labors, one case will present an abortion, we may broadly admit that out of each fifty full-term labors there is one abortion of a criminal nature which leaves behind destruction. Criminal abortions having no statistics, their destructive influence is underrated. An abortion in early marriage opens a path of misery to the young woman and may be the cause of subinvolution of the uterus, or future sterility. Following up my clinical records, I find quite frequently sterility present in robust young women with a previous history of an abortion.

In another class of patients we may observe a series of three or four abortions following each other in close proximity, the first abortion, as a rule, being a criminal one; the others following as a pathological result of improper implantation of the ovum, due to a diseased endometrium. On vaginal examination you may find a lacerated cervix (result of mechanical interference), endometritis, salpingo-oophoritis, etc.

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[1] Read before the Eastern Medical Society.

The So-called Preventive Treatment.—This consists of numerous appliances and methods used in order to prevent conception; checking and obstructing the natural physiological act of coition; employment of strong injections—"spermatozoa destroyers." All this will naturally lead to congestion of the uterus and ovaries and to manifold uterine disorders. Quite frequently families of intelligence and in the highest rank of society, having all the luxuries and necessities of life at their command, are the more persistent in these unhealthy, unnatural deeds. Many of these women have studied to govern the generative functions of the uterus at their own desire; they have brought science to their feet and have learned how to suppress the requirements of Nature; they have elaborated different scientific technics quite successfully. They are fully in accordance with the Malthusian theory and will not allow the increase of population. Such acts are done by some "beau monde" women to preserve the figure and attend the duties of "society."

My personal observation leads me to believe that the average American woman of to-day with her record of one or no children is getting prematurely old and fades away at thirty-five or forty; while her Dutch sister, belonging to the colonial procreating race, is exceeding her in health and vigor.

Child-bearing.—It is plain to every intelligent mind that a woman during her accouchement is exposed to many evil external influences; that she is liable to all sorts of infections. How much more augmented these dangers appear when this woman is handled by a *midwife* whose knowledge of sepsis is *nil,* and whose uncleanliness is traditional.

A few words about our friend, the physician. While we all firmly believe that obstetrical asepsis is our *fin de siècle* success, while we are all aware *de jure* that only the aseptic accoucheur is the ideal attendant upon the lying-in woman, we, general practitioners, are still committing *de facto* silent crimes in the name of professional business, handling daily, as the case may be, patients with erysipelas, scarlatina, diphtheria, etc., and meanwhile attending to obstetrical cases. No wonder, therefore, that infection is often carried to the lying-in woman by her very friend and benefactor, the physician. Quite striking, also, is the involuntary neglect on the part of the general practitioner to give the lying-in patient a good, honest after-treatment. Having no aseptic facilities at hand, he is in constant dread of infection. I have known scores of lesions that were left to heal by Nature's restorative power, simply because the accessories of the tenement-house were more than unsatisfactory, or when the fanaticism and ignorance on the part of the family required sapient silence on the part of the physician. For such reasons a total laceration of perineum involving the sphincter ani is sometimes left untouched.

Quite frequently patients themselves revolt against small operations like perineo- or trachelorrhaphy. Imagine, then, a young woman with a lacerated perineum and cervix, with her whole vaginal tract laid open, doing her daily hard work, and, as a rule, bearing children in rapid succession. No wonder that rectocele, cystocele, descensus of uterus, retroversion, prolapsed ovaries, are so frequently met with in such very young women.

Another case is the expediting of delivery, the early use of forceps, frequent vaginal examinations, dilatation of the cervix, premature rupture of the amnion—in fact, all of the methods of unnecessary interference in order to gain time. All this is strongly contra-indicated and disturbs the steady, gradual dilatation of the cervix uteri, produces traction upon the broad ligaments, and brings sepsis, laceration of the cervix, etc.

The *nurses* of the working-class woman are another plague to the lying-in patient; these nurses are hired for general housework, and have ample opportunities to carry infection to the postpartum woman. These nurses are cooks, laundresses, scrubwomen, in fact everything but medical nurses.

The Lying-in Period.—Early getting up is frequently a cause of female complaints. The middle-class woman is in duty bound to leave her bed often on the sixth or seventh day in order to attend to her work, and herein lies the etiology for retroflexion, retroversion, descensus uteri, subinvolution of uterus, metrorrhagia, etc. Such labor as scrubbing or washing has been frequently done by these patients as early as the second week after confinement.

In conclusion, I will state that there are numerous other etiological factors of a congenital nature that infringe and shorten the life and health of the woman of to-day. She is indeed the modern Tantalus and the community is largely responsible for her sufferings. Our progressive age demands physical labor from women, urges competition with the work of the man at the expense of beauty and health. The youthful life of working girls is thwarted and injured; their married life is not strewn with roses—hence, suffering on both sides. So much for the middle-class woman.

The rich woman of fashion is a slave to the mode and to the injurious life of luxury. She is anemic and weak. She is rarely able to raise a family. She is seldom able to nurse her own child. Motherhood is getting to be a fear to the feeble sex. The coming generation is growing weaker and weaker. The woman of to-day is but a parody on the ancient type of the Greek or Roman matron. At that time a girl up to her maturity had been taught physical culture in the open air; she spent her time in wholesome exercises in the ring, in wrestling, running and gymnastics, together with the athletic young men. There she was developing her beauty, strength and grace; there she was preparing herself for future matrimonial life. There she learned the maxim of "*Mens sana in corpore sano,*" all this during the period of slavery. Our woman of to-day, with all her intellectual culture, is but a physical failure, and it is a reproach to the civilization of the century.

Let us, therefore, hope that a new and happy era will dawn upon our "new woman" of to-day. Let us take new inspiration from kind attempts in our female colleges to teach physical culture parallel with scientific knowledge, to promote gymnastics, bicycle exercise, open-air games, etc. In short, let us give our "new woman" the strength of the Roman matron and the intelligence of the Twentieth Century.

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NOTE ON THE ADMINISTRATION OF WATER IN DISEASE.

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SINCE the advent of the various theories of uric acid pathology, and the recognition of the value of the ingestion of large quantities of water in the treatment of the various conditions in which the posionous products of tissue metabolism are supposed to be the *fons et origo mali*, this simple method of treatment has often been carried to extremes. Like all remedies which are potent for good, water has properties of evil that should be recognized. One of the most important is the effect upon the blood. The microscope has shown, and hematologists recognize, that the ingestion of large quantities of pure water produces a temporary relative hydremia. It is easy to understand how the perpetuation of this blood condition is likely to produce a diminution in the nutritive and oxygenating values of the blood. The rapid passage of large quantities of water through the tissues unquestionably "washes" out waste products. Is it conceivable that its action is so intelligent and selective that it removes only effete material? Certain chemical elements are necessary to the nutritive integrity of the blood. Is it not logical to infer that an excess of water will remove a greater or less quantity of both organic and inorganic matter, upon the relative proportion of which the normal integrity of the blood depends? The effect of water upon freshly drawn blood corpuscles demonstrates this point.

The deleterious effect of the hydremia produced by the ingestion of large quantities of water upon the nutritive value of the blood is necessarily associated with more or less perturbation of the circulation. I am satisfied that, in many instances in which patients are being treated by the ingestion of large quantities of water, symptoms attributed to "weak heart," "nervous irritability," etc., are due to the large proportion of water contained in the blood, and more especially to the large quantity of water rapidly entering and leaving the circulation. Languor and debility are often, perhaps, explicable upon this ground.

In ordering the liberal use of water in disease the physican is prone to ignore the relative capacity for water of the stomachs of different patients. In some instances absorption readily occurs; in others absorption is slow and difficult, and rendered especially so by the existence of gastromotor insufficiency. When the latter condition exists, it is enhanced by the mechanical distention resulting from the ingestion of large quantities of slowly and imperfectly absorbed water. I have noted cases in which patients, who had been ordered to drink large quantities of water, were compelled to empty their stomachs from time to time by lavage. Unless the muscular tone of the stomach be almost perfect, and absorption by the gastro-intestinal tract rapid, serious impairment of the function of digestion is likely to occur. This results not only from mechanical distention of the gastro-intestinal tract by the fluid, but also, as is well known, from the dilution of the digestive juices.

I desire especially to emphasize the influence of excessive water-drinking upon the motor function of the gastric muscle. The disturbance caused by the fluid is especially marked, if it be ingested at the ordinary meal time. Patients who have been directed to drink large quantities of water are very likely to use it indiscriminately, and with total disregard for stomach capacity, with the result that the digestion and the gastromotor function are profoundly disturbed.

One of the most serious results of the indiscriminate ingestion of large quantities of water is what I will term the "renal water habit." Just as the bowel which has been stimulated by the use of laxatives or cathartics for a long period of time finally demands such stimulation constantly in order that it may functionate, so the kidney may eventually arrive at a point when it carries on its functions very imperfectly unless it is stimulated by the ingestion of large quantities of water. I have come to believe that certain waste products, which are rapidly removed by the kidney, and the formation of which is limited by restriction of the proteid food elements, are necessary to the normal performance of the renal function. This is not an argument in favor of the indiscriminate administration of proteids to patients in whom the renal function is impaired. I do, however, wish to call attention to the frequent desirability of a certain amount of proteid substances in the diet in some cases of renal disease.

It must be remembered that, both by heredity and acquirement, the kidney of the human subject has become habituated and adapted to the stimulation produced by proteids. It is not my desire to discuss this subject in detail here, but merely to call attention to it in passing.

I wish again to emphasize the evils of the establishment of what I have termed the renal water habit. Whether this habit results seriously in the long run, I am not prepared to state. My attention has been drawn to the subject too recently to permit any dogmatism on this point. The habit is, to say the least, inconvenient, and should be regarded as a possible source of remotely serious results. It must be admitted that a sluggish kidney is inconvenient, and is always a possible source of danger in case any extra strain should be brought upon it by either local or general disease, whether of an infectious character or not.

It is claimed that the free ingestion of water is very efficacious in reducing edema and anasarca in renal and other diseases. I have often observed beneficial results in this regard, but I am free to say that in the majority of instances the patients have been placed under such favorable circumstances otherwise that it would be rather far-fetched to attribute the improvement entirely to the ingestion of water. Patients treated at the various spas often find marked improvement in the anasarca present in renal disease. Diet, rest, change of air, baths, and cheerful surroundings are oftentimes forgotten as factors in bringing about a beneficial result. In many instances I am confident that the ingestion of large quantities of water increases rather than diminishes anasarca and edema. This is especially apt to be the case when gastromotor insufficiency and impaired absorption of fluids exist. An aggravation of symptoms should be expected in any case from any remedy which disturbs the functions of the gastro-intestinal tract. Whether overstimulation of the kidney by free water drinking in acute—or even chronic—renal disease be advisable is certainly open to question. Vicarious rather than renal elimination is often best.

From prolonged and frequent observations of the effects of the ingestion of large quantities of water in acute and chronic inflammatory troubles of the lower portion of the genito-urinary tract, I have concluded that water is often injurious. It is the common practice to order for a patient with acute cystitis, urethritis or prostatitis large quantities of pure water. This is, in many instances, a mistake. The greater the amount of fluid ingested, the more frequently the patient must urinate, and the more frequently he urinates the greater the amount of mechanical disturbance of the inflamed parts—in the treatment of which rest is a *sine qua non*. Water in limited amounts, with alkalies sufficient to render it neutral, is, of course, indicated. A careful regulation of the diet, and the administration of mild alkaline preparations constitute a much more logical means of treatment than mere dilution of the urine with large quantities of water, which must be eliminated, and the elimination of which must necessarily disturb the inflamed area.

Conclusions.

1. While the ingestion of large quantities of water in various affections is often of great value, the treatment is sometimes extremely detrimental.
2. The nutritive value of the blood is often impaired by the relative hydremia produced by the ingestion of large quantities of water.
3. Disturbances of the circulatory and nervous systems are frequently produced by it. So-called weak heart, palpitation, nervous irritability, lassitude and exhaustion on slight exertion are among the phenomena that may result.
4. Serious digestive disturbance, involving impairment of the secretion and composition of the gastro-intestinal juices, and gastromotor insufficiency may be produced by the ingestion of water in large quantities.
5. Edema and anasarca, while often relieved by the free ingestion of water under favorable circumstances, are not infrequently enhanced by it.
6. Renal water habit may develop, by virtue of which the kidney becomes permanently sluggish unless it receives its wonted stimulus of large quantities of water.
7. Acute and chronic inflammatory affections of the kidney are sometimes aggravated by giving water in excess simply by overworking the renal organs.
8. Inflammatory affections of the lower portion of the genito-urinary tract are often deleteriously affected by excessive water-drinking through the mechanical disturbance necessitated by the resultant frequent and copious micturition.

REPORT OF TWO CASES OF TEMPORARY HYPERTROPHY OF GLANDS OF THE SKIN OF THE AXILLA IN PUERPERÆ.[1]

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WITHIN the last three months I have had two cases of this singular affection that previously had not come to my notice. The first was a healthy primipara whose pregnancy, labor and puerperium were perfectly normal in every respect. On the fourth day after labor the nurse called my attention to a swelling in the right axilla which had appeared the day before; it was evidently in the skin itself. The skin seemed to be from one-half to three-quarters of an inch in thickness; there were two masses separated by the fold at the anterior margin of the axilla. The axillary mass was about one and one-half inches from side to side, and about two inches from below upward. The mass on the front of the chest lying over the pectoral muscle was two and one-half to three inches broad from side to side and about two inches from below upward. This swelling caused very little discomfort, and after the patient learned that it was perfectly harmless no more attention was paid to it. It disappeared in three or four days. There was at no time any trouble with the breast or nipple. No attempt was made to obtain a secretion from the mass.

The second case, which was also in a primipara, was almost identical with the first except that the mass nearly disappeared five days after it was first noticed, on the ninth day of the puerperium, and then reappeared two days later to remain several days more. An unsuccessful attempt was made to get a secretion from the mass.

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[1] Presented to the Chicago Pathological Society, April 14, 1902.

I find that similar cases were described by Champneys in 1886 in a paper on "The Development of Mammary Functions by the Skin of Lying-in Women," published in the Medical and Chirurgical Transactions, Vol. 69. He found the condition 37 times in 377 cases carefully examined. It was frequently found on both sides and about twice as often on the right side as on the left. Although no pores were found and there was no sign of a supernumerary breast, he was often able to get a secretion from the mass which was sometimes a granular débris and sometimes colostrum and milk. Champneys' first supposition, that the mass was due to hypertrophy or increased function of the sebaceous glands of the skin, was not confirmed by microscopical examinations made in three subsequent cases that died. These results published by Champneys and Bowlby in 1895, in the Medical and Chirurgical Transactions, Vol. 78, show that the sweat glands are involved.

It has long been known that the tubular convoluted glands of the skin differ considerably in size and function in different localities. The greatest differentiation in this kind of glands is found in those of the ear and in those of the axilla. As is well known, the ceruminous glands of the ear belong to the same class as do the ordinary sweat glands. The tubular glands in the neighborhood of the axilla likewise differ considerably from those found in most parts of the skin, being longer and larger, lying rather beneath the skin than in it and invested with plain muscular fibers that form a characteristic network. Creighton found that the skin glands of the dog are quite similar to the axillary skin glands of the human. It is the hypertrophy of these specialized sweat glands of the axilla that produces these masses in the skin.

From Champneys' articles it would seem that the cases of puerperal hypertrophy are not rare. He has found the condition occasionally in pregnancy. It is generally found, however, three to four days after labor. It is certainly an interesting physiological phenomenon and possibly of diagnostic value. I have failed to find any reference to it in any obstetrical literature except in Dakin's Handbook of Midwifery.

MEDICAL PROGRESS.

MEDICINE.

Checking Hemoptysis.—The intravenous or subcutaneous injection of gelatin has been favorably employed to stop pulmonary hemorrhage, but is attended by numerous drawbacks. Its use in one case led O. NIEDNER (Deut. med. Woch., June 5, 1902) to observe that the part of the chest-wall injected did not take part in the respiratory movements, probably owing to the extreme distention of the cellular tissue. From this he argued that mechanical fixation should fulfil the purpose of checking the bleeding from a diseased lung by simply putting the parts at rest. After determining by signs and auscultation from which side the bleeding is taking place, that side should be covered with overlapping strips of adhesive plaster extending from the vertebræ to the sternum including the apex. The clavicle, spine of the scapula, axilla and nipple must be protected with cotton pads. This will take about twelve strips, 3 x 60 cm. He reports six cases which resisted all other methods of treatment but were quickly benefited by this procedure. The advantages consist in quick and ready application, without pain, danger of sepsis or thrombosis, or operative preparations.

Cardiac Disturbance from Hepatic Insufficiency.—A cure of an apparently hopeless case through reversal of diagnosis and treatment is reported by T. HERNANDEZ (Rev. de la assoc. med.—far de la Isla de Cuba, Year II., No. 7). Severe dyspnea, cyanosis, edema of face and body, and ascites made up the clinical picture of severe circulatory disturbance. Diagnosis of cardiac lesion with valvular insufficiency and fatal prognosis had been made by the attending physicians; and abnormalities of heart sounds and action seemed to justify this view of the case. Interrogation of the patient, a girl of seventeen, elicited the following history: Entire absence of rheumatic affections, personal or family; robust health till six months previous to present illness; when, after a severe cold, pain in the right hypochondriac region was noted, followed later by precordial distress with subsequent development of the condition described. This history led the author to the belief that the heart was not primarily responsible for the trouble, but rather that it was laboring to overcome obstruction to the circulation, and that this obstruction lay in a congested liver just as impeded renal circulation gives rise to cardiac hypertrophy in the nephritic. Acting upon this hypothesis, treatment was directed to the hepatic congestion and disturbed circulation, by active purgation, with the result that ascites and edema disappeared, heart function became normal, murmurs ceased, and the patient was completely restored to health after two months' care. The writer believes that cardiac embarrassment arises more frequently than is generally supposed from deranged hepatic circulation, and that the latter should always be taken into consideration in the treatment of cardiac disturbance.

Contribution to Amebic Dysentery.—Our present unsettled knowledge as to the etiology of dysentery is dwelt upon at length by L. ZORN (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 & 4). A thorough revision of the nomenclature seems advisable and the term dysentery should be applied only to that acute epidemic form which probably has bacteria for its cause, while the other types would well go under the name amebic enteritis. The question as to whether the amebæ are the real incitors of the latter class or serve merely as the carriers of bacteria still remains unsettled. It is generally conceded that more than one variety is pathogenic, and the author recognizes three: the ameba coli, ameba coli mitis, and the ameba intestini vulgaris; the latter occurs also in the healthy, especially after the use of Carlsbad salts. Most cases of true amebic dysentery do well under the combined use of quinine, methylene blue and tannalbin internally, with rectal irrigations of tannin and quinine. The amebæ are generally easily detected in the stools as greenish-yellow shiny bodies, movable on a warmed stage, but the details of their internal structure varies with the variety. Though they succumb rapidly to quinine in dilute solution, a certain concentration may be necessary since in the stools they are much more resistant owing to the fact that they often are surrounded by tenacious mucus. Attempts to grow them on bouillon, agar, gelatin and hay-infusion failed, as with most other investigators. For microscopical examination the fresh specimens gave the best satisfaction, but excellent stained slides were obtained by the following method: A few cubic centimeters of the feces were mixed with from three to four times the amount of a fluid consisting of 15 parts of a 1-per-cent. chromic-acid solution and 3 parts of a 1-per-cent. osenicacid solution. After ten minutes the fluid was centrifuged and the sediment mixed with about five times its amount of a 25-per-cent. aqueous solution of Beale's carmine. After half an hour the centrifuge was again used and the deposit treated with a dilution of the same carmine up to a pink color. The solid matter can now be embedded in glycerin, or, after dehydration, in balsam. The fecal particles will appear brownish, the amebæ pink, with dark red nuclei.

Calcification of the Heart.—Among the rarest pathological specimens are those which show extensive calcareous degeneration of the heart-walls. A unique case is reported by F. VON PESSEL (Münch. med. Woch., June 10, 1902). The patient was suffering from an extensive lymphosarcomatosis and died shortly after a slight operative interference for the relief of the dyspnea caused by glands pressing on the trachea. At autopsy is was found that the greater part of the anterior wall of the left ventricle, together with a large portion of the septum, was converted into a shell of lime. It was hard to comprehend how the patient could have withstood the effects of an insufficient systole together with his malignant disease and a laborious occupation and yet show so few signs of cardiac insufficiency until an operation became necessary, when a short chloroform narcosis apparently resulted in sudden decompensation.

Malaria and Filariasis in Barbados.—This is one of the very few regions in the south where these two diseases are not both active. GEO. C. LOW (Brit. Med. Jour., June 14, 1902) states that malaria in Barbados is unknown, while filariasis exists to an inordinate and dangerous degree. It is more than significant that nowhere on the island are the Anopheles to be found, while Culex fatigans, one of the most frequent hosts of filaria nocturna, abounds. Just why there are no Anopheles; whether they were once imported and subsequently became extinct or whether they never reached Barbados is not known. All the neighboring islands are pestilential with malaria and in each Anopheles are found in abundance. The inordinate frequency of elephantiasis and the kindred manifestations of filarial infection is in direct proportion to the infection of the Culex fatigans; out of 100 taken for examination from the wards and corridors of the general hospital 23 contained the embryos. On analyzing a table which resulted from the examination of 600 patients in this hospital and in other institutions the very interesting fact is established that of the 13-per-cent. of patients found to be infected, in no less than 8-per-cent. there were absolutely no symptoms. In discussing the question of limiting filariasis, the author states that considering the fact that Culex fatigans is to a larger extent domestic and breeds in much smaller areas than Anopheles, a great deal can be done by improving the drainage and in protecting from mosquito infection such tanks and cisterns as must remain full of water. The only way to accomplish this is to have the matter overseen by competent men, because in Barbados nothing in the way of coöperation can be expected from the natives.

A Case of Fatal Hereditary Edema.—Iunicke in 1882 described this condition now known as angioneurotic edema, but, as is well known, it rarely ends in death. T. WARDROP GRIFFITH (Brit. Med Jour., June 14, 1902) gave a most interesting history of a girl, under observation for sixteen years, who finally and very suddenly died from laryngeal edema. The history was as follows: The girl's father has suffered from swellings of the body ever since infancy. Twice it affected the larynx and the third time at the age of twenty-nine he suddenly died during the third attack. Shortly after the girl's birth, the right arm suddenly became so swollen that the sleeve had to be cut away in order to remove it. The swellings were usually pale, diffuse or circumscribed, did not pit on pressure and never became vesicular or bulbous. For sixteen years she was under the author's care and although the larynx was occasionally affected no serious danger or difficulty was experienced. One day, while spinning a top for her child she suddenly dropped it, rose, clutched her throat and dropped dead. Thus so sudden was the last attack. She had a few hours before complained of some throat swelling, but it had not seemed to amount to much. Autopsy showed that the walls of the larynx came together just below its superior aperture and continued juxtaposed until just below the level of the true cords. The edematous fluid was pure serum and, contrary to conditions usually found, the tissue covering the true vocal cords was decidedly affected. There are many things of more than passing interest bearing on these cases. Angioneurotic edema has been traced through five generations, no less than 22 members having been affected. It has been called "wandering edema," "massive" or "giant urticaria" and various other names which strongly suggest that their authors were agreed in a measure that it was of neurotic origin. Two hundred and thirty years ago Ranvier ligated the femoral vein of a dog and noted that there was no swelling until after section of the sciatic. Gowers notes the association of trigeminal neuralgia with venous distention on the same side and edema of the scalp. Charcot observed the association of swelling with hysterical palsy, the swelling passing away with the cessation of the palsy. In alcoholic paralysis dermatographia, which is a traumatic urticaria akin to, if not identical with, the edemas under discussion, is perhaps more marked on occasions than in any other condition. There is still much study needed ere one can understand the various forms of swellings; the purely mechanical, the toxic and the trophic are so interwoven in their relationship as to be extremely difficult of disentanglement.

Hysteria and the Lacrimal Reflex.—The manifestations of hysteria attack the eyes as much as or more than the other organs, chiefly in the form of anesthesia of the conjunctiva. Although the palpebro-ocular reflex may be totally abolished in this disease the lacrimal reflex is not affected at all. This fact constitutes a very important differential point between hysterical bulbar anesthesia and that due to trigeminal partial or total paralysis, as explained by W. G. SPILLER (La sem. méd., 1902, No. 23). The lacrimal reflex is very effectively provoked by placing a scrap of paper between the upper lid and the eyeball. He has had opportunities of verifying this observation on two patients from whom the Gasserian ganglion was taken on one side for obstinate neuralgia. In one of these patients he found that on tickling the nasal mucous membrane on the side of the operation no tears could be made to flow from the eye of the same or of the opposite side. If, however, the mucosa of the nares of the normal side were touched a prompt reflex flow of tears appeared. He next compared the two sides by placing bits of paper between the upper lid and the ball and saw no tears appear on the side whence the ganglion had been taken, but a free secretion occurred in the opposite eye. The other individual behaved in the same manner. From these observations Spiller suggests systematic tests for the presence and absence of the tear reflex in the failure of touch sense about the face and suggests that it will prove a sure means of distinguishing between true centric and peripheral nervous disease and hysteria.

Buccal Tuberculosis.—Tuberculosis of the mouth is almost always secondary; indeed, the few primary cases described are doubtful ones, writes G. Vincenzo (Gazz. degli osped., June 8, 1902). The author's study of this subject may be thus summarized: Tuberculous stomatitis may be disseminated or circumscribed, the former being readily recognized by the formation of tubercles on the margin of the tongue, frenum, cheeks, lips and hard palate. The circumscribed form may, however, be difficult of diagnosis. Infection is carried by the blood or may enter through a wound. Sites of tuberculous predilection in the mouth are, in the order of their frequency, the gums (infection occurring in this location after extraction of teeth in most instances), the pharyngeal portion of the tongue, hard palate, cheeks, lips, and, rarely, the labial commissure. The author describes a case in the latter location in a patient with pulmonary tuberculosis, the portal for infection being opened through a burn from an imperfectly dissolved dose of creosote administered by mouth. Ulceration started from the labial commissure and extended to the cheek, having an irregular, ragged infiltrated border with an occasional grayish-yellow nodule; the base being granular and bleeding readily. Very little pain was experienced save through movement of the lips in speaking or eating. Points in differential diagnosis of tuberculosis in this location are helpfully grouped by the writer as follows: The lesion may be diagnosticated from ulcero-membranous stomatitis in that the latter has its initial focus in relation to a carious tooth or one which is piercing the gum; the fetid odor, acute concomitant adenitis, diarrhea and age of patient are additional diagnostic aids. In epithelioma the age of the patient is an important consideration and cancerous ulcers are round from the beginning, whitish, and the center presents a small scab. Syphilitic lesions are distinguished by evidences of infection elsewhere and a general examination will make the diagnosis between tuberculosis and syphilis. Herpes is always preceded by vesicles and tends to rapid cure. Eczema is generally accompanied by lesions elsewhere, as about the nose, behind the ears, etc., and never gives rise to deep ulceration. Impetigo is characterized by yellow crusts and heals rapidly. The curative measures advised are excision of the diseased tissue or curetting and cauterization with the thermocautery..

A Case of Narrow Aorta.—Cases of hypoplasia of the arterial system have been reported, but are sufficiently rare to demand more than passing interest. In the case published by R. Bandel (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 & 4) there was present an abnormally stenosed and thin-walled thoracic aorta which reached its highest degree where the arch became the descending aorta. The narrowing was not interrupted by any structures or dilatations. Some doubt existed as to the time of origin of this anomaly, for, since septum defects or a patent ductus Botalli were not present, it seemed improbable that the normal development was interrupted during fetal life. The patient complained of nothing up to his sixteenth year, yet the disproportion probably already existed then, but was compensated for by the increased expansibility of the thin aortic walls. Between his sixteenth and eighteenth year, however, he passed through a severe illness and subsequently to this took up the laborious occupation of a miller, all of which incidents doubtlessly led to loss of compensation. There was nothing characteristic about the different symptoms; they were simply those of hypertrophy and dilatation of both, but particularly the left ventricle with a long diastolic murmur over the aortic region and a high pulse. Digitalis produced only a temporary relief.

Diagnosis of Banti's Disease.—That Banti's disease forms a definite symptom-complex and has been generally accepted as a separate and distinct disease is without doubt for the marked splenomegaly and anemia, followed by secondary hepatic cirrhosis and ascites and often associated with a hemorrhagic diathesis and leucopenia, are too characteristic to be mistaken for anything else. The excessive hyperplasia of the spleen prevents mistaking the condition for acute infectious diseases, chronic hyperemia of emphysema or heart disease, tumor or amyloidosis. In leucemia there is a characteristic condition of the blood and in alcoholic cirrhosis the ascites and contraction of the liver are not a secondary process. More difficulty may arise with malaria but particularly with hereditary tardy syphilis of which four cases are published by H. Chiari (Prog. med. Woch., June 12, 1902) which at first glance resembled Banti's disease. It is here that concomitant conditions, such as a distinct history, marked endarteritis in youthful subjects and other luetic stigmata, must lead to the proper diagnosis which may be confirmed by microscopical examination of the tissues.

Gastroptosia.—There is considerable difference of opinion in regard to the use of the terms gastroptosis, enteroptosis, nephroptosis, etc., and also in reference to the relation which these conditions bear to one another. A. Rose (N. Y. Med. Jour., June 21, 1902) is particularly annoyed by those who find movable kidneys so frequently and, believing that a certain group of symptoms result from the abnormal position of the kidneys alone, proceed to sew them up at once. He believes that nephroptosis seldom if ever exists alone, but that it is simply a part of a general relaxation of the abdominal organs and especially of their muscular walls. Attention must be paid to any faulty digestive power, but support must be given to the intestines and stomach as well as to the kidney. He claims very good results from a specially devised belt and from strapping with adhesive plaster.

Abdominal Symptoms in Malaria.—It is not uncommon to experience some abdominal pain preceding a chill, but severe cramps lasting for a considerable time make the following cases remarkable. J. M. Jackson (Boston Med. and Surg. Jour., June 26, 1902) had a patient who for three weeks presented symptoms of appendicitis or septic peritonitis as evidenced by severe abdominal pains, vomiting, diarrhea, chills and a collapsed condition. Examination of the blood showed that the plasmodia and the symptoms promptly subsided under quinine. Several other cases are reported in each of which a diagnosis of general peritonitis or some abdominal condition had been made, but which were evidently malaria.

American Mineral Springs.—There is so little known about our own mineral springs that many American physicians are accustomed to send their patients to Europe, believing that it would be impossible to attain the same amount of improvement from springs in our own country. J. K. Crook (Med. Rec., June 28, 1902) has investigated a large number of springs and finds that in every class except one the waters of this country are richer in mineral ingredients than are those of Europe. Not merely in potency of a few individual springs, but in general variety of mineral constituents which go to make up an attractive medicinal water there are within this country, with the single exception of the sulphated salines, better waters and more of them than in Europe. There are waters which are similar to, but not so rich as the saline purgative waters, Hunyadi János, Carabana and Apenta. The American waters have the same therapeutic effect, but must be used in larger doses. With this exception, there are excellent waters representative of each class and it only remains for the ordinary practitioner to obtain the necessary information to direct his patients aright. Few American physicians appreciate the value of mineral waters, and hence the springs are only very slowly coming before the public notice. Most of the important springs have now been so improved that attractive and comfortable accommodations may be offered the patient.

A Case of Aortic Aneurism.—Aneurism of the aorta especially those of the ascending portion, are by no means rare, yet they can cause considerable difficulty in diagnosis on account of unusual localization as in the case of E. Harmsen (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 & 4), in which a large sac developed from the left side of the aorta and it was impossible to decide during life whether it or the pulmonary artery was involved. Since the point of origin of the large vessels was not affected, no permanent difference in the radial pulses could be detected, the slight temporary changes could well be explained by unequal pulling of the sac as it grew. Considerable compression was exercised upon the pulmonary artery which resulted in hypertrophy and dilatation of the right ventricle and a systolic murmur in the third, left intercostal space. Stenosis of the left bronchus led to numerous bronchiectasiæ and to a putrid bronchitis. The autopsy disclosed as immediate cause of death, numerous miliary abscesses in the brain and in discussing their etiology, the author considers three possibilities, (1) the thrombi of the aneurism itself; (2) the fetid bronchitis and (3) the gelatin injections which were used for therapeutic purposes to stop the frequent hemoptyses. The second seems most probable. Numerous experiments on the proper concentration of gelatin injections seem to show that strong (30-per-cent.) solutions are not more dangerous, but are preferable on account of greater ease of administration. Guinea-pigs stand the injection well and entravital occlusion of the vessels could not be detected.

SURGERY.

Treatment of Sepsis.—Early in the present year the value of high, long-continued rectal irrigation in the treatment of sepsis was exploited by J. Wernitz of Odessa (C'blatt f. Gynäk., 1902, No. 23). The same author continues a discussion of this means of combating that deadly condition and concludes as follows: The irrigation first of all cleanses the bowel of all deleterious matters whose absorption may lead to increase in the symptoms and whose evacuation is especially important whenever the sepsis is connected with peritonitis. Paresis and paralysis of the bowel is so common in this condition that any means of causing evacuation will be acceptable. After a short time of slow absorption of the hot saline fluid the heart-action and circulatory sufficiency increase, then the secretion of perspiration and of urine become more active and still more of the poisons are removed from the body. The temperature then falls and under the improved circulation often the patient is much better and in a hopeful condition after a few hours. The procedure is without danger, can be carried out upon any patient, and has so much in its favor that no one should ever omit it in the management of these cases.

Horizontal Gastroduodenostomy.—That surgeon is a skilful operator by genius who in the presence of unusual difficulties instantly conceives and performs modifications of standard operations. C. Nicoladoni of Gratz (C'blatt f. Chir., 1902, No. 23) encountered a carcinoma of the small curvature of the stomach which after removal left a long point extending toward the right, in such a manner as to prevent the oblique gastroduodenostomy recommended by Kocher, whose operation he was at the moment attempting. For this reason he turned up the greater curvature and an inch or so back from and parallel to it made a horizontal incision. At this point he found approximation of the duodenum and stomach by the usual four suture lines very easy. He thinks that the oblique anastomosis of Kocher had best be abandoned, because the horizontal is so much more direct and simple.

Lanoline in Dressings.—Fatty substances were at one time very extensively employed as a part of surgical dressings prior to the advent of antiseptic and aseptic surgery. Obediently, however, to the teaching of such men as Kocher practically all fatty substances about wounds have been abandoned, because their fat-basis has been shown to be a convenient and fertile soil for the propagation of many forms of bacteria. It may be granted that antiseptic ointments do not fulfil the dictates of rational treatment, but this is not the fact concerning pure fat, like lanoline, according to P. von Bruns and B. Honsell (La sem. méd., 1902, No. 23). These surgeons have found that for open wounds gauze soaked in lanoline and covered with ordinary cotton fulfils all the uses of a wet dressing and has none of its inconveniences. It is well known that many wet dressings create a maceration of the skin and lead to dermatites, more or less tenacious, and that after being in place twelve to twenty-four hours their bactericidal powers are totally dissipated and their moisture tends to imprison the secretions of the wound and change them into a very productive soil for all bacteria. There are certain cases, however, in which the indications are no disturbance of the wound or of the affected part and the application of an extensive dressing, although the secretions from the wound may be really very abundant. It is in just these cases that Honsell recommends lanoline dressings. This substance liquefies under the body heat, permeates the gauze and spreads over the wound surface as a thin layer, becomes readily permeable to the secretions from the wound and imparts to the patient a feeling of peculiar freshness. The lanoline gauze permits discharges to pass through its meshes into the absorbent cotton which forms the next layer of the dressing. These lanoline dressings are also available to combat all forms of cutaneous irritation consequent upon the use of the various common wet dressings, to soothe the reaction after burns, to protect the granulations of wounds from the adhesion of gauze to them with the consequent pain and bleeding following their removal, to guard against offence to the skin by the ordinary wet dressings through making the layer next to the skin non-adherent. So far as the purposes of asepsis and antisepsis are concerned, lanoline may be regarded as a feeble antiseptic, but for sensible security it must be employed under all the usual precautions.

Tuberculosis of the Testicle.—An interesting analysis of ninety-six operations for the relief of this condition is presented by O. Horwitz (Jour. Am. Med. Assoc., June 21, 1902). He has found that a primary tuberculous infection of either the epididymis or testicle may occur, the former being by far the more common. A primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one. Primary involvement of either usually takes place through the circulation, a predisposing cause being a slight traumatism or an infective condition, such as gonorrhea. Secondary involvement may follow a primary focus in organs which are in direct anatomic relation, such as the seminal vesicles, prostate, urethra, bladder or kidney. The invasion may be rapid with abscess formation, or slow with symptoms resembling syphilitic orchitis or malignancy. The tuberculin test is recommended for doubtful cases and if hydrocele be present, its fluid should be examined for tubercle bacilli. He does not recommend injections of iodoform or sulphate of zinc. Epididymectomy is favored in all cases of encapsulated caseous nodules quiescent in the epididymis, and together with resection of the vas deferens is not attended by either atrophy of the testicle or sexual weakness. He finds that curettage is dangerous and uncertain and is only to be employed when radical treatment is not permissible. When the epididymis alone is involved, a resection of the diseased structure is all that is required. Double orchidectomy should be performed when both glands are diseased. It is probably better to wait until a later time before removing infected seminal vesicles when the epididymis or testicle is resected. The author believes that hygienic and climate influences play an important part after operations and that the antituberculous remedies are to be employed in connection with surgical treatment.

Umbilical Cysts.—Though comparatively rare, a great variety of cysts may have their seat at the umbilicus and their symptoms may be so pronounced that they may be mistaken for incarcerated umbilical herniæ, as occurred to K. Walz (Münch. med. Woch., June 10, 1902). Besides allantoic cysts, cysts of the urachus claim particular attention and may be diagnosed by the presence of several layers of polymorphous epithelium in the walls. More rarely, atheromata, dermoid and echinococcus cysts may be found and encapsulated peritonitic exudates and ovarian cysts occasionally present at the navel, or a hernial sac may become cut off from the rest of the peritoneum and fill with fluid. There still, however, remains, a considerable number of cases in which the nature of the tumor is doubtful.

Laparatomy Incision.—The frequent occurrence of ventral herniæ succeeding laparotomy wounds has led to the employment of various intermuscular operations which have been more or less successful. A modification of this method has been used by L. A. Stimson (Med. Rec., June 28, 1902) during the past two years, when the lower portion of the abdomen was the site of operation. The technic consists of a curved transverse incision through the skin, aponeurosis and sheath of the recti, followed by the usual longitudinal separation of those muscles and division of the peritoneum. The transverse incision crosses the middle line about four centimeters above the pubes and extends a variable distance toward the anterior superior spines on either side, being carried down to the aponeurosis of the external oblique, the fibers of which are separated. The incision is carried down through the sheath of the rectus, but this deeper portion of the incision does not extend beyond the edge of the rectus. These flaps are then dissected loose by cutting the attachment to the septum which constitutes the linea alba. The recti are then separated by a median incision and the peritoneum is opened. The longitudinal incision may thus be extended from the symphysis two-thirds of the distance to the umbilicus. If more room be necessary the flap may be cut in the median line and prolonged as far as necessity compels. At the termination of the operation the peritoneum and sheath and aponeurosis are sutured separately with catgut and the skin with silk. The central transverse portion of the incision is thus protected from a separating strain by the uninjured recti beneath it, and the longitudinal incision by the overlying fascia.

BACTERIOLOGY, HISTOLOGY AND PATHOLOGY.

Cancer a deux.—The occurrence of carcinoma in both husband and wife has recently been considered more so than formerly, a proof of the intercommunicability of this disease. In this connection two interesting cases are reported by Radestock (Deut. med. Woch., May 29, 1902). The first instance is that of a woman who died with recurrent carcinoma of the ovary. Her husband seven years later succumbed to the effects of intestinal cancer. The second case is that of a woman of seventy with carcinoma of the esophagus with a rapid, fatal ending. Within a few months the husband died from a cancer in the same locality. The author calls attention to a hereditary history of carcinoma of the wife only in the first case and to the long interval before the invasion took place in the husband. In the other case the remarkable facts are the similar course and the locality of the disease.

A New Method of Inoculation against Anthrax.—Several years ago G. Sobernheim (Berl. klin. Woch., June 2, 1902) described the use of an anthrax serum which could be used successfully against experimental anthrax infection, whether the latter was accomplished by feeding animals with anthrax spores or by the subcutaneous introduction of bacteria. With a view to the production of a more lasting and more active form of immunity, it was decided to resort to a method which involved the use of a weak culture of anthrax bacilli in addition to anthrax serum. The serum was obtained by the use of gradually increasing doses of anthrax cultures of graduated virulence; horses, oxen and sheep were employed. The method of combined immunization consisted in the separate subcutaneous injection of the protective serum and of the weak anthrax culture in different parts of the body. Fourteen days later the animals were inoculated with fatal doses of virulent anthrax bacilli. The results which followed this combined method of immunization were fully as satisfactory as those previously obtained by the employment of protective serum alone. The practical value of the method outside the laboratory was demonstrated in a series of 2,700 inoculations of cattle in the province of Pomerania. In some of the districts fresh outbreaks of anthrax occurred; in others the disease had been strongly entrenched for a considerable period; but in no single instance did the disease spread to cattle after immunization, although unprotected animals in the immediate neighborhood fell victims to the disease time and again. A single inoculation by the combined method continued to give protection during an observation period of more than nine months. This method has the advantage over that of Pasteur, in requiring but a single inoculation. The period of immunity is apparently of longer duration and the protection more potent than when Pasteur's method is followed.

Experiments with Actinomyces.—The bacteriological examinations of the micro-organisms of human actinomycosis has hitherto yielded various contradictory results so that one is forced to assume different varieties. K. Doepke (Münch. med. Woch., May 27, 1902) had occasion to investigate the material from three typical jaw cases and finds that the growth on different media is positive only when these are inoculated with a relatively large amount of pus. The colonies generally grew anaerobically; gelatin was liquefied pretty rapidly; on bouillon a moderate turbidity with sediment, but no skin on the surface, was noticed and a yellowish or yellowish-brown pigment was produced with a disagreeable odor suggestive of decomposing proteids. The diagnosis actinomycosis can be rendered positive by *(a)* an unstained smear from the fresh pus which shows the degenerating form of the fungus, the ray-shaped bundles; (*b*) a smear stained according to Gram, giving evidence of short or long threads or more spherical bodies; (*c*) a series of sections, in which, after proper manipulation, both *a* and *b* can be identified. The absence of ray-shaped bundles does not exclude actinomycosis. The granular bodies contained in the filaments may develop into streptococcus-like chains, into fine, slightly curved threads, or into segmented thread of various sizes.

The Isolation of Typhoid Bacilli from Water.—VINDELHAUT (Russki Vratch, N. 19, 1902) makes use of the agglutinating properties of immune serum in order to detect the presence of typhoid bacilli in water. So far he has made only a preliminary test of the method, which consisted in the following: He contaminated water with typhoid and colon bacilli and let it stand at 37° C.; then he added to the water immune serum. After a time there forms a sediment which is separated from the rest of the water, diluted with normal salt solution and a Petri plate prepared from it. The plate usually shows only cultures of typhoid bacilli.

The Problem of the Cause of Cancer.—The solution of this problem will, in human probability, be reached not by one, but by many minds. Hence, it is of interest and advantage to record briefly the opinions of such men as O. ISRAEL (Archiv. f. klin. chir., B. 67, H. 3), especially when based upon study. In tabular form his conclusions may be thus enumerated: (1) All causes operating to establish and maintain breaks in superficial continuity may also excite new-cell proliferations (attritions, traumatisms and nutritive changes). (2) The same results from functional activities, recognizable especially easily in lymph-nodes and leading to compensatory hypertrophy and hyperplasia. (3) Epithelial and endothelial layers cover in a very short time and by means of a rich cell-division process (which precedes their own) free and exposed zones (loss in continuity of the connective tissue, fibrin-coagula). Their cell-division ceases only when the entire surface is covered. (4) The subsequent development of protective (superficial) cells, in which through the frequent repetition of the activities resulting in proliferation (see heads 1—3) naturally a further continuation of cell-division occurs, determines through adaptation and transference a rather one-sided activity of their powers of multiplication, while other functions and morphological characters are changed or lost. (5) If there is a harmony between the development of the connective-tissue element as it strives to fill in the space in active evident proliferation, and that of the superficial cells, then benign neoplasms may arise (cysts, papillary fibromata, myomata, etc.) (6) If the proliferation of the superficial cells outruns that of the connective-tissue cells and out-balances its adaption-powers and resistance, then malignant tumors occur (carcinomata). (7) The protective cells which have grown inward into the base, cause there by their pressure of active growth free surfaces, undergo through the inconveniences of the local conditions (space and nutrition) and of through their multiplication increasing losses, which call for additional reparative activity (see heads 1—3). Thus in the primary focus and in the metastatic deposits the permanent predominence of the epithelial (protective) cells is established. (8) All the well-known injuries which peculiarly affect the protective cells are causes of cancer and capable of causing destructive growth so soon as they reach conditions of variation in cell-development, provided they act frequently and persistently enough to excite the extraordinary capacities of proliferation. Then the conditions enumerated in heading 6 arise. (9) Mechanical thermal, chemical and parasitic (vegetable micro-organisms) factors may under suitable conditions excite primary carcinoma. (10) The generalization of cancer occurs to the degree that the conditions in the passive parts of the body and the extending sequelæ of the heterotopic epithelial cells of the primary will permit. (11) Just as carcinomatous development so is the origin of all proliferation-tumors to be explained through cystogenesis, which by endogenous and ectogenous influences are changed in their course.

Cultivation of Microbes in a Sac.—The method of cultivating microbes in a sac of collodium suspended in the peritoneal cavity of animals has been applied to the bacteria of peripneumonia of cattle, of bubonic plague, of glanders and certain others by P. DJOUNKOWSKY (Arch. de Sc. Biolog. de St. Petersbourg, tome ix, No. i), since auto-intoxication of the microbes through their own products is prevented by these diffusing through the membrane, and since the phagocytic action of leucocytes is removed. Rabbits were employed in most cases and the recovering of the sac, which was found imbedded in a mass of newly-formed tissue, was generally a difficult task. The following methods were employed to facilitate this and to prevent pressure on the sac and diminution of the surface available for diffusion. (1) The sac was introduced into a tube of glass, to which it was fastened by means of a thread of silk; after closing the open ends of the cylinder with collodium, it was placed in the peritoneum. (2) A similar cylinder was used with a number of round or longitudinal orifices in its walls. These allow of better diffusion than in the first case. Where the sacs were left in a short time and in small animals, they resisted pressure sufficiently, but for longer duration, and in larger animals there was some difficulty of extraction and some danger of crushing, and in one case a piece of intestine was found strangulated in one of the orifices. It is well to introduce into the sac a small glass tube. (4) In order not to place into the peritoneal cavity of the same animal many sacs at the same time, one can enclose three or four of these with their small tubes in a larger, sealed sac. The sowing is practised with a pipette which pierces the pellicle, whereupon the orifice is closed with collodium. (6) For greater ease in sowing one can draw out and seal the end of the tube after having filled it. (7) The tubes were sometimes modified so that it was possible to remove part of the culture or the bouillon without performing a new laparotomy. To this effect one end of the tube was closed with a pellicle of collodium and the other drawn out and a piece of caoutchouc with a glass tube attached.

Concerning Nephrolysins.—Struck by the agreement between the results of clinical observation and the experimental work on nephrolysins published by Lindemann, Nefedieff and Bierry, G. ASCOLI and E. FIGARI (Berl. klin. Woch., June 16, 1902) undertook to continue the experiments begun by the authors just mentioned. Rabbits were given subcutaneously emulsion of recently extirpated dog's kidneys. The reaction which followed depended in part upon the quantity of emulsion used, but in nearly every case a local and a general reaction occurred and in many instances the experiments resulted fatally. The injection of renal emulsion causes in the rabbit's organism the production of a powerful nephrolysin. The presence of the latter cannot be demonstrated in the red blood cells; but a serum can be obtained which, after a latent period of four to eight days, produces an intense albuminuria, red blood cells and casts being also found in the urine. The kidney lesion, which is called forth by this serum, is not a transient one; albumin remains present in large amounts for weeks and even for months. Similar sera, though less powerfully injurious, can be obtained following one-sided ligature of the ureter or after the removal of a single kidney. It appears that injury of a single kidney, whether in one's own or in a foreign organism, tends to abnormal metabolism and thus to the production of substances which may be called nephrolysins and which are capable of reacting as powerful poisons upon normal kidneys. The relation of this discovery to the tendency of nephritis to become chronic, is plain.

Finer Structure of Bacteria.—Prior to the examination of the fine granules in the cell-body of bacteria, little was known of their finer histological structure. P. Ernst (Correspbl. f. Schweiz. Arzt., July 14, 1902), their discoverer, relates how he first saw them in a bacillus isolated from a case of xerosis conjunctivæ and how he considered them as nuclear in nature since they stained intensely with methylene blue and Delafield's hematoxylin, since they resisted digestion and since it was thought that mitotic figures could be discerned. Several years have now passed and as yet little practical importance has accrued from the discovery, yet for the differential diagnosis between true and pseudo-diphtheria bacilli they have been of great value. Ernst has recently again taken up the subject, using intravital staining with methylene blue, or neutralroth, and has obtained most remarkable pictures, bringing out the granules in a way characteristic for each organism studied. Their true nature, however, still remains doubtful.

Primary Sarcoma of the Omentum.—An interesting report of this rare condition is presented by J. P. Miller (Phil. Med. Journ., June 21, 1902). The patient, a woman aged fifty-five years, suffered from abdominal symptoms which never had permitted a definite diagnosis during life. The autopsy showed a number of soft, "strawberry" like nodules in the omentum, which were found to be endothelial sarcomata. Gall stones and a cirrhotic liver were also found, but all the other organs were perfectly normal. The author calls attention to the extreme rarity of primary sarcoma of the omentum and mentions the support which his case would lend to the doctrine of relationship between biliary lithiasis and malignant disease of the peritoneum which was formerly promulgated. He does not adhere to this belief, however, because of the great frequency of biliary calculi without this accompaniment.

Phases of the Malaria Parasite.—The unusually complicated nomenclature given to the various stages of development of the malarial organism, is, for descriptive purposes, an imperfect one. E. Ray Lankester (Proc. Royal Soc., May 31, 1902) suggests a new terminology, and at the same time indicates the different points in the development of the plasmodium. The spore which is needle-shaped is formed outside of the human body, and to this is given the name exotospore. Forty or fifty of these spores at a time enter the blood as the result of a mosquito bite, and each one entering a red blood cell, assumes the ameboid form and is called the amebula. This enlarges and breaks up into spherical spores (enhemospores) which are liberated with the destruction of the red blood cells. Some or all of the amebulæ derived from the enhemospores cease to break up into spores, but enlarge and, in the case of the estivo-autumnal parasite, become sausage-shaped and are known as crescents. The latter remain quiescent and separate into two groups, male and female, which are not distinguishable in the human blood-vessels. They are swallowed by the anopheles mosquito, in whose blood they carry on further the life-history of the parasite. The crescents are the sexual phase of the plasmodium. In the stomach of the mosquito they undergo two different modes of development. Both sexes which are known respectively as the egg-cell and the sperm-mother-cell are spherical; from the periphery of the latter there develop rapidly six or seven spermatozoa, which fertilize the egg-cells floating in the mosquito's stomach with the formation of the zygote. This increases in size, acquires a pyriform shape and expanding and contracting in the line of its long axis, is known as the vermicule. This breaks through the walls of the stomach into the blood-sinuses, nourishes itself on the insect's blood, becomes a spherical cyst (sporecyst), enlarges and breaks up into an immense number of exotospores. The latter are liberated into the blood of the mosquito, whence they easily pass into the ducts of the salivary gland, and are readily conveyed by the stabbing beak into the human blood.

Classification of Thyroid Tumors.—An arrangement of the benign tumors of the thyroid based on their structure is proposed by Pratt (Boston Med. & Surg. Journ., July 3, 1902), with the claim that it is simpler and more satisfactory for surgical diagnosis. He divides them into three primary classes: (1) Simple adenoma, (2) fetal adenoma, and (3) papilliferous adenoma. The first is the most common and includes 90 per cent. of thyroid tumors. It consists of closed vesicles filled with colloid and in structure resembles the normal thyroid. These may undergo secondary degenerative changes and form colloid, cystic, or fibroid goitres. The structure of the fetal adenoma resembles the fetal thyroid. It is made up of solid masses or rosettes of epithelial cells, with little or no colloid. The third class includes those which contain branching papillæ lying in cystic spaces, developing either from the walls of old cysts or true adenocystoma resembling those of the ovary.

Contribution to the Study of Binuclear Cells.—In his study of double-nucleated cells, A. Koutchouk (Arch. de Scienc. Biolog. de St. Petersbourg, tome ix, No. i) found in the liver of the normal guinea-pig, as many as 9.88 per cent. Where the common bile-duct had been ligated and the animal had survived for three days, this number dropped to 5.86 per cent. Thus this ligation seemed to act strongly upon the body of the cells in favoring direct division in those with two nuclei, but it did not act in the same sense upon the cellular nuclei. No proof is thus added to the doctrine of biological autonomy of the principal constituents of the cell: its body and its nucleus. The ligation of the common duct acts differently upon the direct and indirect division of the hepatic cells; this fact proves again that the karyokinetic process obeys other laws than the process of direct division.

Viscosity of Blood in Nephritis.—In the majority of cases of nephritis examined, C. Hirsch and C. Beck (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 5 and 6) could not find an increased viscosity of the blood; on the contrary, this was generally much reduced owing to hydremia. The internal friction of the blood was above the normal in only 12.5 per cent., and here edemas and hydremia were absent. In some of the cases this condition appeared only with the onset of uremic symptoms, but further clinical and experimental study is necessary to explain the significance of this. The old hypothesis of Bright that the cardiac hypertrophy in nephritis is due to direct irritation of the heart seems to be most rational in the present stage of our knowledge.

PHYSIOLOGY.

Independence of the Lobes of the Liver.—Through aqueous injections into the veins of the liver Glénard and Siraud in 1895 demonstrated that the areas to which the branches of the portal vein are distributed are independent one of the other, and that, while the vascular groups of each lobe intercommunicate, there is no vascular connection between the right and left lobes. H. SÉRÉGÉ (Jour. de Méd. de Bordeaux, May 25, June 1 and 8, 1902) in recent experiments with methylene blue injections confirms these findings and demonstrates that coloring matter carried by the branch of the portal vein to the left lobe, penetrates the lobulus quadratus in its entirety, but leaves the right lobe and lobulus Spigelii unstained; thus establishing the line of demarcation between the right and left side of the liver. A further series of experiments, the author maintains, has demonstrated two distinct portal currents; a mesenteric to the right lobe, and a splenic to the left. This conclusion is based upon the following findings: (1) Lack of homogeneity in the portal blood, established by difference in density, etc., between the splenic and mesenteric serums. (2) Constant localization in the corresponding hepatic territory of emboli induced by intravenous injection in a given intestinal area. It is believed that definite hepatic areas are in relation with equally definite areas of the digestive tube; what is spoken of as the gastrosplenohepatic connection placing the spleen and stomach in relation with the left liver lobe, and the enteropancreaticohepatic, establishing relations between intestine, pancreas, and right lobe. Additional proof of the separate physiological as well as anatomical functions of the two lobes is afforded by experiments which show that the urea content of the left lobe reaches its maximum two hours after eating, the time corresponding to gastric digestion; urea of the right lobe remaining stationary until the fourth hour (when pancreas and intestines participate in digestive function), increasing from that time and reaching the maximum at the sixth hour. These results are, in the writer's belief, proof at once of a double portal current, and distinct relation between the gastric function and left lobe of the liver as well as the intestinal with the right. Clinical evidence of these relations is offered in the localization of morbid hepatic processes in the left lobe, in certain alcoholic cases in which stomach and spleen are affected; and also by Glénard's observation that hepatic disease was limited to the right lobe in 70 per cent. of his diabetic cases.

Intestinal Absorption of Sugars.—To determine the difference in the rate of absorption of various simple sugars, was the object of a research by J. NAGANO (Pflüger's Archiv. für Physiol., May 27, 1902). The rate of absorption of a solution of a substance in the intestine is a function both of the selective activity of the intestinal cells and of the physico-chemical constitution of the dissolved substance. In connection with this must be taken the discovery of Hôber that the rapidity of absorption of different salts is related to their rate of diffusion. The rôle played by the intestinal mucous membrane in relation to the differences in the rate of diffusion of the various sugars, has not yet been determined. Having an important bearing on the object of this research, it is interesting to note that those sugars that contain three, six and nine carbon atoms have nutritive value, those that contain five and seven have none, and that the peutoses are burned up in the organism with greater difficulty than the hexoses. The author investigated the stereo-isomeric sugars belonging to certain groups and found that the rates of absorption of these sugars were different. He discovered that the sugars with five carbon atoms are absorbed more slowly than the sugars with six carbon atoms. The rate of the absorption of the water contained in the solutions of the different sugars, presented similar differences to those of the sugars dissolved. If the concentration of the sugar be increased, the absorption of the water is diminished. In the upper part of the intestine the sugar is absorbed relatively faster than the water, but in the lower portion of the canal the water is absorbed relatively faster than the sugar. The author interprets his results as follows: Inasmuch as the rates of diffusion of the various sugars have not yet been determined, one is not in a position to say whether the observed differences in absorption have any relation to the rates of diffusion or not. The fact that peutoses are more slowly absorbed than hexoses, has probably some connection with the fact that the former are more slowly oxidized in the tissues than the latter. The slower absorption of mannose may likewise be attributed to a slower assimilation. On the other hand, gelactose presents the opposite phenomenon. Although its absorption is greater than that of glucose, it is consumed in the organism to a much less degree than the latter. In attempting to explain these phenomena on a physical basis, one has but to consider that in relation to the rate of absorption, the intestinal mucosa does not play an indifferent rôle. It is quite possible that the mucosa is more easily penetrable by a sugar-molecule of a certain configuration than by one of a different configuration.

Artificial Fertilization.—That the spermatozoon is not always essential for the production of fertilization has already been shown by Loeb, and is strikingly exemplified in the experiments of M. H. FISHER (Am. Jour. of Physiol., June 21, 1902) on artificial parthenogenesis in annelids. He succeeded in raising the unfertilized eggs of *amphitrite* to an advanced stage of segmentation, by adding a small amount of calcium to the sea-water, or by simply agitating the latter. In *nereis* he found that a certain increase in the osmotic pressure of the sea-water is capable of bringing about the development of the unfertilized eggs. A. P. Matthews had produced fertilization in the starfish by means of mechanical agitation. According to the author, the presence of calcium ions is necessary for the production of fertilization in *amphitrite.* It is believed by Loeb that the spermatozoon does not act as a stimulus to the egg, but simply as a catalyzer that accelerates a process which starts of its own accord. The addition of calcium in *amphitrite,* or the abstraction of water in *nereis,* serves only as a method of accelerating a process that occurs anyway. But this accelerated karyokinesis is essential to the further development of the egg, for if left undisturbed in sea-water, the egg reaches only the first stage of segmentation and then dies.

The Resuscitation of the Heart.—Medical and physiological literature, according to A. KULIABKO (Pflüger's Archiv. für Physiol., June 3, 1902), affords many examples of the extraordinary vitality of the heart, which has for a long time been regarded not incorrectly as the *ultimum moriens* of the whole organism. This postmortem vitality, while greatest in cold-blooded animals and while also markedly present in warm-blooded animals, is also to be seen in human beings. The author reports the observation of Rousseau, who at the autopsy on the body of a woman executed twenty-nine hours before, saw the heart still beating. The cessation of the heart-beat is no criterion of the complete death of this organ. Even when the heart has remained quiescent for many hours it may again be aroused to pulsate, if warmed and defibrinated arterial blood be caused to flow through the heart. Langendorff succeeded in thus arousing the cardiac beat after a pause of two hours. The use of physiological salt solution instead of blood leads to an early relaxation and cessation of the heart-beat; if the injection of blood is renewed the cardiac impulse returns. An artificial serum invented by Locke, containing the mineral constituents of the blood in the same proportion as they are contained in the latter, together with 0.1 per cent. of dextrose, is capable of maintaining the beat of an isolated dog's heart with undiminished energy for more than twelve hours. If after a longer or a shorter pause in the heart-beat, the above solution be caused to flow through the cardiac chambers, after a few seconds the heart begins again to contract. At first the contractions are weak and irregular and confined to the openings of the vena cava, then they gradually increase in strength, extend over the auricles and the right ventricle and finally involve the whole heart. An isolated dog's heart in which an artificial circulation is maintained continues to pulsate; if it is then placed on ice, within five minutes the contractions cease. After a lapse of eighteen hours, if the heart be removed from the ice and again injected with Locke's solution, in less than half a minute the pulsations return and continue for four and a half hours. The author succeeded in restoring the contractions in a dog's heart which had been kept on the ice for forty-four hours. He draws the following conclusions from his experiments: The suppression of vital phenomena by means of cold, metabolic waste products, poisoning or chemical changes in the environment, does not necessarily imply the death of the organ. The limits of this cardiac pause are affected by the individual peculiarities of the animal, the state of nutrition, age, etc. At any rate they cannot be far from twenty-four to forty-four hours.

Alcohol—Food or Poison?—A question which of late years has given rise to considerable debate according to Prof. KASSOWITZ (Pflüger's Archiv. für Physiol., June 3, 1902), is whether a substance in the same organism can act at the same time as a poison and as a food. With respect to alcohol, the investigations of the author have answered this question in the negative. His conclusions are as follows: The belief in the nutritive value of alcohol depends on the supposition that a portion of the alcohol is, in the process of its metabolism, directly split up or burned, without first having been built up into the protoplasmic substance. Since the logical sequence of this supposition, namely, that foods of equal value as fuel can substitute each other, has been refuted by reliable experiments, then the supposition of a direct metabolism of substances outside of the protoplasmic tissues can no longer be maintained. The only remaining possibility, namely, that all foods are assimilated into the structure of the protoplasm and that all the products of metabolism are the result of the splitting up of this chemical unity, corresponds best to the facts that are at hand and contradicts none of them. This conception implies an extreme complexity of the protoplasmic molecule, with a corresponding extremely unstable equilibrium. Every stimulus and every chemically active poison causes a disorganization of the labile molecules of protoplasm. Since alcohol disturbs protoplasm not only as a stimulus but also as a poison it cannot at the same time be assimilated and employed as a food. Under the toxic influence of alcohol, protoplasm is disorganized either with the splitting off of fat and of nitrogenous waste products, or with the splitting off and formation of gelatin-yielding tissues under the form of connective-tissue fibers. In the first case the toxic effect of alcohol is an increased nitrogenous elimination, and in the second case the effect is a nitrogenous retention, which manifests itself in the formation of inflammatory products in the different organs and tissues. After a short period of stimulation, alcohol paralyzes the centers of innervation in the musculature, which through its diminished activity produces less carbonic acid. The diminution of carbonic acid and nitrogen observed in experiments on the metabolism of alcohol, signifies, therefore, not a sparing of the tissue-fats and tissue-proteids, but is an indirect result of the toxic action of alcohol. In thorough harmony with this theoretical conception is the observation that the substitution of a portion of one's non-nitrogenous food by a quantity of alcohol of equal caloric value, is associated with a diminished working-capacity and a dissipation of the vital resources. Since by means of these conclusive facts, the uselessness as a food, of alcohol consumed in the system has been empirically shown, it has therefore been proved that the nutritive property of a substance can not depend upon oxidation in the organism. The practical lesson, according to Kassowitz, to be learned from this theoretical deduction, which is in complete agreement with empirical observation, is short and to the point, namely, that neither with the healthy nor with the sick, should alcohol serve the purposes of a food.

The Nature of Adrenalin.—The numerous uses to which this substance is being applied in practical medicine impart a peculiar interest to the inquiry whether it be the active principal of the suprarenals or not. This question is answered in the affirmative by T. B. ALDRICH (Amer. Jour. of Physiol., July 1, 1902), who adduces the following as proof: All concentrated aqueous extracts of the suprarenal glands reduce Fehling's solution on boiling. The adrenalin obtained from a certain amount of the aqueous extract reduces Fehling's solution approximately in the same proportion as the original extract from which it was made. The mother-liquor from which adrenalin has been removed does not reduce Fehling's solution. Adrenalin is not a reduced form of the active principle, since it is obtained without the use of a reducing agent. Adrenalin is, moreover, the same whether using sodium carbonate solution or ammonium hydrate as a precipitant. Epinephrin and other questionable products obtained from the gland must be an oxidized or at least a changed form of adrenalin, since they do not reduce Fehling's solution. Adrenalin is identical with the copper-sulphate reducing base, the blood-pressure raising body, as found in the gland, and is, therefore, the active principle of the same and not a modified fotm as Abel contends.

Investigations on Muscle-Juice.—Assuming that hypertrophied muscle contains more albuminous matter and less stroma and that the muscle-fiber loses proteid matter in atrophic condition—in other words, that the muscle in a favorable nutritive state in convalescence and in athletic subjects yields more juice on expression than when flabby and below the normal in size, R. VOGEL (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 3 and 4) conducted a number of experiments with the view of determining the state of the muscle by the amount of fluid obtained. Strangely, however, the musculature of cachetic persons yielded most, but it was soon found that this was due to two irrelevant conditions, through edematous infiltration and through the rigor mortis. It was further found that when a muscle was taken still warm from the body absolutely no fluid could be expressed; if some time was allowed to elapse between death and the experiment, the amount increased day by day until the sixteenth day, when putrefaction was beginning, just one-half of the weight of the muscle passed through the strainer. The juice obtained during the first hours after death was alkaline; if the muscle was older it was strongly acid, but if still older this acidity gradually diminished. Since most of the albuminous matter of the muscle passed into the fluid, the process of liquefaction may be looked upon as a postmortal proteolysis. It is thus clear that the storing of meat for several days, as practised by butchers, really improves it, since it renders it less tough. There is no doubt that the juice possesses a highly nutritive value, since it contains 10 per cent. of dry residue, of which 8.2 per cent. represents albumin, 0.09 per cent. creatin, xanthin, etc., 1.2 per cent. ash and 0.5 per cent. fat, and since the albumin is present in an easily assimilable form and the salts stimulate the appetite. To determine whether liquefaction is due to bacteria, the meat was examined for these at various stages. When recent, the interior was sterile; after six hours a slight growth was obtained; later their number increased much more rapidly. To ascribe proteolysis to bacteria, this would have to occur slowly at first and more rapidly subsequently, which is not the case. Nor is the developing acidity the cause, since this constantly diminishes after it has reached its maximum during the first days and, furthermore, the addition of alkalies seems to make no difference in the amount of fluid obtained. It is probable that undetermined enzymes are responsible for the process which also goes on in the living muscle, where, however, the blood rapidly brings new material unless a cachexia exists, when the absence of a sufficient amount of this material shows itself in atrophy. When an artificial thrombosis is developed in the aorta of an animal by ligating the aorta, a considerable amount of fluid can be expressed from the muscles of the legs several hours later. Similarly, an artificial solution of muscle-proteid can be produced by actively exercising muscles as in strychnine-poisoning, which goes to show that proteolysis is a cardinal property of the living tissue.

Action of Baths on Metabolism.—The results of the studies of H. Winternitz (Deutsch. Arch. f. klin. Med., Vol. 72, No. 3 and 4) show that (1) under the influence of sand-baths a considerable increase of oxygen consumption and carbonic-acid discharge takes place, which exceeds that occurring in fevers without raising the temperature much or influencing the general condition. (2) Mud-baths cause no noticeable changes in oxidation, while the application to the skin of irritants, such as mustard, shows an increased production of heat and carbonic acid and increased consumption of oxygen. (3) In carbonic acid baths an absorption of the gas takes place. (4) Sulphur baths have no influence upon the exchange of gases.

Nitrogenous Substance in the Urine of Fasting Animals.—Based upon a large number of experiments, R. De Bohtlingk (Arch. de Sc. Biolog. de St. Petersburg, Tome ix, No. 1) arrives at the following conclusions: (1) Different animals of the same species and place, and under the same conditions exhibit such difference in weight on absolute starvation, as do not stand in relation with the unit of weight and time of fasting. (2) The degree of fall in temperature during the last days of fasting does not correspond to the change in the general condition of the animals. (3) The alkaline reaction of the urine of cats is to be considered normal, although they belong to the class of carnivora. (4) The specific gravity of the urine of fasting animals reaches a high figure and does not fall easily with the last days of starvation. (5) When passing from a period of feeding to one of starvation the total nitrogen in the urine always is found increased relatively, and, in half the cases, absolutely, in the case of rabbits. (6) With cats it diminished distinctly in the relative as well as in the absolute sense. (7) The amount of urea increased or diminished depending on whether the total nitrogen increased or diminished in that particular animal. (8) Contrasted with every unity of weight and time, rabbits eliminate, in the normal as well as in the starving state much less ammonia in the urine than cats. (9) With rabbits it could not be proven that the elimination of ammonia is influenced in a constant or appreciable way by starvation. (10) With cats, however, there was a constant and pronounced diminution. (11) The increased decomposition of albuminoids toward the end of the starvation-period and the increased nitrogen elimination which results, was manifest in all the experiments on rabbits, and absent in those on cats. (12) The relation between the nitrogen of the urea and the total nitrogen in rabbits was found increased during fasting in five and diminished in one; in the main there was a notable increase. (13) With cats the same relation was found increased in two and diminished in four; on taking the average, it is feebly diminished. (14) During the last hours of starvation with rabbits and the last days with cats, one observes a strong diminution of the oxidizing power of the organism, since only a small amount of the urinary nitrogen appears as urea. (15) The relation between the ammoniacal and the total nitrogen is notably diminished in all the experiments on rabbits. (16) With cats, it is found increased in half and diminished in the other half. (17) During the last hours or days one, however, observes an increase in this relation. (18) One can also determine during the inanition, a very manifest diminution in the quantity of the excrements and of their nitrogen and dry residue.

The Oxidizing Ferment of Milk.—Since 1881 certain reactions have been known in the case of cow's and human milk, which indicate the presence of an oxidizing ferment. According to C. Gillet (Jour. de Physiol. et de Pathol. Gén., May 15, 1902), the first to draw attention to these reactions was Arnold, who showed that fresh cow's milk on the addition of a little tincture of guaiac gives a blue color of varying intensity. The discoverer of this phenomenon thought it was due to the presence of ozone, but it is now known to be produced by an oxidase in the presence of oxygenated water. A better reaction is that caused by the addition of 1 cc. of an aqueous solution of guaiacol, crystallized from a 1 per cent. solution, to 1 cc. of fresh milk when, in the presence of oxygenated water, a garnet-red coloration results. The oxidase of milk has the properties of the diastases, since it is destroyed at a temperature of 79°, since it does not dialyze, and since it filters through porcelain with difficulty; moreover, it is not affected by chloroform and ether. Woman's milk also gives the above reactions, but in contrast to those afforded by cow's milk, they are inconstant, accidental and of little intensity. In cow's milk the ferment is diffused, with no relation to any anatomical element; on the other hand, in woman's milk it is connected with the presence of polynuclear leucocytes, which fact explains why the reaction is always present in colostrum. Occasionally the reaction is found apart from the colostral period, at a time when no leucocytes can be found by the microscope. Probably in this case the reaction is to be attributed to a more or less acute and transitory return of the colostral state, with no microscopical evidence of the same. However, one should not conclude that a woman's milk is imperfect unless the reaction be intense, durable and present in the milk of both breasts.

Contributions to the Knowledge of Human Bile.—Nine patients having a biliary fistula afforded J. Brand (Pflüger's Arch. f. Physiol., June 3, 1902) excellent opportunities for making a comprehensive study of the bile. The quantity of this secretion obtained from a complete biliary fistula varies greatly from hour to hour; the total daily output ranges from 500 to 1,100 cc. During the night the secretion declines, reaches a minimum in the early morning hours, rises rapidly after awakening, and attains its maximum in the early afternoon. The bile obtained from an incomplete fistula has more solids than that flowing from a complete sinus. There are two reasons for this; in the first place, constituents of the bile are absorbed from the intestinal canal and resecreted by the liver; in the second place, inspissation of the bile in the biliary passages leads to its greater concentration. The solids of bile obtained from a biliary fistula amount to 1-4 per cent., while those of bile obtained from the gall-bladder reach as high as 20 per cent. Only the organic constituents of the bile have any strict relationship with the general metabolism, of which they furnish an exact measure. Normal liver-bile is obtained only when a quantity of biliary acids is daily injected into the intestine, equal to that which flows from the biliary fistula. This provision is usually overlooked in animal and human experimentation. Liver bile is of a golden-yellow color, which it derives from the presence of bilirubin. All bile contains a large quantity of urobilinogen; hematoporphyrin was present in one specimen which was tested for it. The reaction of bile is neutral or alkaline, the latter reaction being derived from the presence of mucus; but it is not parallel to the quantity of the latter. Bile contains sulphur in the form of ethereal sulphuric acid. The molecular concentration of fistula and bladder bile is the same as that of the blood; concentrated bile contains more of the specific biliary constituents and less of the inorganic salts. In the gall-bladder and biliary passages a solution of salts similar to those contained in the blood is absorbed, and mucus is secreted to take its place. A high content of mucus is associated with a high content of salts; the reason for this relationship is unknown. Likewise, the association between tne amount of the organic constituents and the amount of water has not been explained; probably these constituents compensate each other. Lastly, bile conducts electricity much better than blood, on account of the greater proportion of inorganic salts and the organic salts contained in the former.

The Voluntary Erection of Human Hair.—The influence of violent emotion and the reflex action of cold are known to cause a bulging of the hair-follicles (cutis anserina) and an erection of the hairs, through the contraction of the arectores pilorum muscles attached to the hair-follicles. S. S. Maxwell (Amer. Jour. of Physiol., July 1, 1902) reports the case of a young man who could produce bulging of the hair-follicles and erection of the hair at will. This condition was best seen on the hips, thighs, back and arms. There was no edema, no resemblance to factitious urticaria or any other of the well-known reflexes seen in highly neurotic individuals. There was no marked change in color, only a slight increase of pallor due to a vasomotor change. Associated with this condition was a remarkable development of the dermal structures. The subject had an unusual control of the facial muscles; he could move the skin of his scalp freely in various directions, he could move his ears simultaneously, alternately or singly at will. His powers were not the result of practice, but were apparently inherited from his father who possessed them to a considerable degree. It seems that in the lower animals a high development of the panniculus structures and the power of erection of the hair go together. The subject experienced modifications of the respiratory movements whenever he induced the phenomenon. He felt as if the chest was held rather more than usual in the inspiratory phase and the breathing deepened or was momentarily suspended. Erection of the hairs was also accompanied by sensations of pleasure, and afforded feelings of relief, especially when the patient suffered from headache. The erection of the papules was accompanied by vasomotor changes shown by a contraction in volume of the finger. Dilatation of the pupil also accompanied it. It seems as if the relation between dilatation of the pupil and vasomotor constriction, so well known by experiment, obtains here also. The author believes that the voluntary control of the arrectores pilorum muscles seems to be correlated with an inherited and unusual neuromuscular and dermal development. A biopsy was performed on the subject to determine whether the arrectores pilorum contain striated muscle or not. Only smooth muscle was found. Here was an example of smooth muscle being voluntary at the same time. The old distinction between striated or voluntary, and unstriated or involuntary muscle can no longer hold. The difference between muscles must rather depend on the manner and rate of contraction. It seems that striated muscles occur when prompt and rapid movement is necessary.

The Electrolysis of Hemoglobin.—In the course of his paper describing his latest chemicophysical researches on hemoglobin, A. Gamgee (Proc. of Royal Soc., May 31, 1902) gives the interesting results of the electrolysis of this substance. The electrolysis of a pure solution of oxyhemoglobin causes a separation of this compound in a colloidal but perfectly soluble form. If the experiment be carried on in a cell with an animal membrane separating the anode from the cathode, as the result of the action of the electric current there occurs a separation of colloidal hemoglobin in the anode compartment; the precipitate falls as a beautiful red cloud with a perfectly colorless supernatant liquid. As the result of the further action of the current, a rapid and total transfer of the colloidal hemoglobin from the anode to the cathode cell takes place. There is evidence which proves that the precipitated colloidal and at the same time soluble hemoglobin represents the undecomposed molecule of the blood coloring-matter. The transfer of this colloid through an animal membrane, is explained on the basis of Quincke's electro-endosmosis. These interesting phenomena are also observed in the case of CO. hemoglobin. Oxyhemoglobin differs from most colloids in the facility with which it crystallizes, and furnishes a complete analogy with silicic acid. The amount of hemoglobin in the red blood-corpuscles is so large that in most animals the whole of the water of the blood would not be sufficient to dissolve it. Therefore, this substance is not in a state of solution, but is probably present in its colloidal form. The facility with which it traverses animal membranes under electrolysis suggests to physiologists the possibility that certain of the phenomena of absorption in the animal body may be closely connected with electromotive changes in the tissues concerned.

THERAPEUTICS.

Cure of Tuberculous Meningitis by Creosote.—Since lumbar puncture for diagnosis was introduced by Quinke, cases of tuberculous meningitis have been observed which, contrary to the previously accepted belief, resulted in recovery. Thomalla (Berl. klin. Woch., June 16, 1902) reports a case of tuberculous meningitis in which recovery followed the use of creosote in liberal doses. The diagnosis was confirmed by Professors Gerhard and Von Michel. The patient was a male, aged twenty, whose parents had died of tuberculosis and who had been cauterized for local tuberculous processes of the tonsils, tongue and neck. For several years the patient suffered from an incurable fistula *in ano*. During the progress of the case tubercles were found in the choroid of the left eye. Creosote was administered from the beginning of the attack in increasing doses, until the daily quantity, four and a half grams, divided into three doses and given in capsules, was reached. In addition to the use of creosote the treatment relied on in this case was chiefly the administration of potassium iodide and the painstaking nourishment of the patient. Chaumier regards creosote as valuable in these cases only if given in doses of at least two grams daily, and only then if combined with outdoor treatment. Burlureaux recommends the injection of creosote in increasing doses up to five grams. Thomalla places the limit at the point of toleration and remarks that creosote is found in the blood-serum in proportion to the dose given. Not only the daily quantity but the individual dose should be as large as possible inasmuch as the drug is very rapidly eliminated. The efficient working of the drug depends upon the saturation of diseased areas with this really powerful bactericide.

Cure of Cancer by Injection of Adamkiewicz's Serum.—After a series of operations involving the breasts and axillæ for recurrent carcinoma the surgeons entrusted with the treatment of the case despaired of surgical cure. The ribs were diseased, a swelling had already appeared above the clavicle, the arm was edematous and painful, and the mediastinum in all probability was involved. The pathological diagnosis was repeatedly confirmed. The surgeons having abandoned the case L. KUGEL (Berl. klin. Woch., June 16, 1902) began the injection of half-gram doses of Adamkiewicz's serum (cancroin). After twenty injections the pain and edema of the arm disappeared. Doses of a gram were tried and abandoned on account of the nausea, palpitation and dizziness which were produced. The treatment was continued, however, half-gram doses being given daily for a period of twenty days, and repeated for a similar period after an interval of several days. After three months the injections were made only every other day, and the pauses after each series of twenty injections were prolonged. During the first four months of this treatment it was noticed that the enlarged cervical gland did not increase in size, as it had previously done. After fifteen months the glandular swelling above the clavical disappeared, and improvement was noticed in all the diseased localities. The patient's general condition also changed markedly for the better.

Treatment of Pneumonia.—The value of the antipneumococcic serum in the treatment of pneumonia is favorably commented on by B. W. GOLDSBOROUGH (Jour. Am. Med. Assoc., June 28, 1902). He reports nine cases in which there was a marked change within eight hours and in most the crisis was successfully passed within forty-eight hours. The serum may be given in connection with other remedies; he injected 20 c.c. and repeated the dose in eight hours if no favorable change took place. The best results are obtained in lobar pneumonias, although catarrhal and bronchopneumonias are also greatly benefited even with the possibility of a fixed infection. Of the author's cases, two died, one having been practically in extremis, the other already afflicted with a metastatic pulmonary sarcoma. The author has also tabulated 447 cases, including 61 treated with antidiphtheritic serum, which show 15.7 per-cent. of deaths. Of 395 cases treated with antipneumococcic serum alone the percentage is 16.5. The percentage of deaths from pneumonia in various hospitals shows that the best results obtained are 75 per cent. of recoveries.

Treatment of Cancer with the Serum of Young Animals.—The facts that cancer very rarely indeed appears in life very early or even before the twentieth year and that probably the age of growth and development confers a virtual immunity toward malign neoplasms suggested to A. KORBSCH of Krappitz (La sem. med., 1902, No. 23) the feasibility of treating cancer with the serum of various animals. The early results of his experiments have been encouraging. In the order of descending efficacy he has found the serum of the ewe best, then that of the hog and finally that of the calf. This statement is in direct agreement with the recent teachings of Stricken that of all domestic animals the sheep and the swine are least frequently victimized by new growths. Korbsch gives the serum in a daily dose of from 30 to 50 grams hypodermatically or by preference through the mouth. Ulcerating neoplasms he dresses either with the serum itself or with a normal solution of chloride of sodium. Under their influence the ulcer loses its characteristics and in a short time begins to granulate over, and the adjoining tissues soon become softened. The neoplasms which yield best to this treatment are such as are usually amenable to any form of therapeusis—for example, growths upon the back of the nose. Next in order of amenability are cancers of the lip, although growths in succulent parts are apt to be refractory. He cites one case of a neoplasm in the cardiac end of the stomach which made deglutition impossible. After about one month of subcutaneous treatment so much improvement occurred that the patient was able to swallow all classes of food conveniently. It is, of course, necessary to procure and prepare the serum under very rigid aseptic precautions and to examine the animals very carefully before using their blood. Administration of this serum by mouth is never attended by any reaction whatever, while on the other hand after the dose of 50 grams hypodermatically is passed a slight elevation of temperature to perhaps 39.5° C. is noted. Korbsch thinks that the employment of still greater quantities of the serum will have much more marked effects upon the disease. In order to avoid the injection of very large bulk of serum he suggests the utility of dried preparations which can later be turned into concentrated watery solution, prior to administration.

Gelatin in Dysentery.—Favorable results from the use of gelatin in acute and chronic dysentery are described by A. GERALDINI (Gazz. degli Osped., June 22, 1902). Its special value in the treatment of this condition appears to lie in its prompt control of enterorrhagia, though it favorably influences other symptoms as well. The remedy was used in enemas, 200 cc. of a two-per-cent. solution; or hypodermatically, 5 cc. of a thirty-per-cent. solution injected in the gluteal region one to three times daily. The combined treatment, one hypodermic and two enemas daily, was also used with good effect.

Therapeutics of Anemic Conditions.—According to the unanimous opinion of many authors, the effect of iron in chlorosis cannot be replaced by alimentation, says H. METALL (Med. Chirurg. Centralbl., June, 1902), since typical cases cannot be cured even by forced feeding. If anemic girls be placed on a full diet, they may accumulate fat, yet the quantity of hemoglobin in the blood will increase only a few percentages and will then permanently remain at this level. The necessity of iron then being proven, it only remains to be discovered which form of iron is most serviceable. The author has received the most satisfactory results with the peptomanganate of iron which is easily absorbed by the entire intestinal tract and which evokes no concomitant effects. In twelve out of twenty-three the hemoglobin was normal in fourteen days; in five after three weeks, and in five after a month. In acute anemia good results were also obtained by this mode of treatment.

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SOME PRACTICAL MOSQUITO WORK.

IN the issue of the MEDICAL NEWS of Sept. 7, 1901, under the caption "Biology and Comfort" we referred editorially to a plan of the North Shore Improvement Society of Long Island for getting rid of the mosquito—a plan both large in its general comprehensiveness, and thorough in the elaboration of its details.

At that time mainly through the offices of the Cold Spring Biological Laboratory this association was able to command the services of experts second to none in this country.

From the printed report which we have just received the hopes entertained by the originators of the plan have been most brilliantly realized, for from a medical and sanitary standpoint the "Report on Plans for the Extermination of Mosquitos on the North Shore of Long Island between Hempstead Harbor and Cold Spring Harbor" is a remarkable document and reflects great credit on all concerned in its production.

That a group of property owners should have fathered this enterprise is an evidence not only of their practical philanthropy, for such a piece of work must have been costly, but of a high appreciation of scientific sanitary work, and of communal pride. No such careful, thorough, and extensive study of a biological problem is known to us apart from enterprises under government control.

The report is not only technically scientific in value, but it is highly practical. Every breeding place of *Anopheles* in this localized area has been noted, from the rain water pools and the hoof tracks across swamps, to Mr. X's water barrel and the tin can behind Mr. Y's stable. At first glance the less enterprising owners of estates in other parts of the island are disposed to discuss with derision what they consider an exposé of their neighbors' affliction; and the north shore has shared a temporary notoriety like unto the Jerseys in the matter of mosquito fame. As a matter of fact there are less mosquitoes on the north shore than on any part of Long Island because the bluffs and hills afford only small, limited areas for the breeding places which are mentioned in the report; and it is not too much to prophesy that in five years this mosquito policed area will be free absolutely from the pest.

Apart from the question of the extermination of the mosquitoes themselves the logical results of this report will tend to destroy the few lingering strongholds of malaria now present in the island. So soon as a study of these malarial infected areas can be made and brought into co-ordination with the facts contained in this present report on the transmitting agents malaria can be most thoroughly eradicated from the beautiful north shore.

CONTAGIOUS EYE DISEASES IN NEW YORK CITY SCHOOLS.

THE discussion on contagious eye diseases in the schools of New York City which occupied the New York Academy of Medicine at its last meeting before the vacation (see MEDICAL NEWS, this week, page 279) disclosed a rather unexpectedly alarming state of affairs. Few medical men and probably no one outside of the medical profession realized the amount of danger in this regard, or the extent of the evil as it already exists, and its possibilities for the disturbance of the vision of many thousands of our children. Dr. Richard Derby, an excellent and conservative authority in the matter, found on investigation that in two crowded schools in the lower East side of New York City about 20 per cent. of the pupils were suffering from contagious eye diseases. A large proportion of the cases were of so severe a type that they would require operative procedure before a cure could be reasonably hoped for. Infectious eye affections in stages of development in which they were no longer contagious, were not included in the report promulgated by Dr. Derby.

Needless to say this is a very serious state of affairs. Practically all of the severe cases mentioned will recover only with limited vision and very few of the sufferers will be without some disturbance of sight as the result of the affection. Beyond this, however, there is the question of the conveyance of the disease to as yet unaffected children. The present system of school inspection is totally inadequate to prevent this. Patients suffering from virulent contagious ophthalmia in its early stages when contagion is most active, may present such slight external signs of eye trouble as to escape the notice of the teacher. Under the present regulations such children may never be referred to the school physician at all. The only precaution that would insure the discovery of all contagious eye diseases would be the eversion of the lids of all the pupils by an expert trained in the recognition of such diseases. The ordinary practitioner might easily miss the premonitory signs, and without serious discredit to himself, since specialized knowledge is required for their diagnosis, and in some cases the symptoms are very obscure.

As it is, some of the medical school inspectors, in their desire to protect the other children from possible danger, have occasionally sent pupils home from school as sufferers from contagious ophthalmia when they were really affected with nothing more serious than hyperemia of the conjunctiva as a consequence of uncorrected refraction errors or simple conjunctivitis from some non-infectionally irritant cause. On several occasions this has led to unfortunate clashes of opinion, to the detriment of the authority of the school inspector—always an unfortunate occurrence if there is to be proper cooperation between the teachers and the physician in favor of effective school hygiene. Besides, medical inspectors of schools, after such an experience, are apt to be less strict in demanding that pupils with even slight eye trouble shall be referred to them, and so contagious diseases are allowed to exist under circumstances that rather favor their spread.

Knowledge is the first step toward successful reform, and even the limited statistics at hand have aroused the attention of the New York City board of health and at the Academy meeting the Commissioner of Health promised his active cooperation for the suppression of the evils that are shown to exist. It is extremely improbable that a census of the schools other than those of the East side, where there is a large recently immigrant population, would show anything like the same dangers from contagious ophthalmia in other parts of the city. Undoubtedly, however, there are cases in practically all the schools and unless proper precautions are taken the disease will spread even among the native population. In certain parts of Europe a large proportion of the people are, as the result of neglect, seriously affected by this disease. The school medical census, prepared at the end of the school year under the direction of the board of health, will doubtless furnish a basis for the institution and enforcement of regulations that will not only prove preventive of contagion but lead to the eventual removal of this danger from the community.

Besides the schools, as was pointed out at the Academy meeting, the public baths present unfortunately favorable opportunities for the spread of contagious eye diseases. Many ophthalmologists of large experience in the various New York City eye dispensaries are convinced that the free bathing houses are the source of most of the severe conjunctivitis which is seen during the summer months. Some of this is due to the careless use of towels in common, but much of it seems to be due directly to infection from other sources—the water, the hands of companion bathers or their touching of moist surfaces after rubbing their eyes. This would seem to suggest that greater care be exercised with regard to the permitting of promiscuous bathing and insistence on the regulation that those with suspicious appearances of the eyes shall not be permitted to bathe unless they have a physician's certificate stating that they are not suffering from a contagious eye disease. Such a certificate would not be difficult to obtain from an eye dispensary or other trustworthy source. The enforcement of such a regulation would undoubtedly exclude from the city baths many individuals who need regular applications of clean water, but the common good must be first consulted in a matter so serious as this.

The present state of affairs in our New York City public charitable institutions with regard to contagious eye diseases shows how much can be accomplished by careful regulation. When the awful prevalence of contagious ophthalmia in these institutions was disclosed by the Ophthalmological Society's investigation some fifteen years ago it seemed hopeless to expect that the evil could be eradicated, yet the present reports show that there is a lower proportion of the disease among the inmates than among those admitted, so that the institutions have actually become safeguards for the population by helping in the eradication of these diseases. With this happy result in mind we can feel sure that the dangers at present existing in schools and bath houses will be eliminated and the contagious eye diseases brought under effectual surveillance and control.

MEDICAL TERMS AND GREEK DERIVATIONS.

Like everything else that Prof. Osler is interested in The Book and Journal Club of Baltimore is proving itself a source of practical suggestions for the medical profession throughout the country. The subjects treated before the club are mainly of a character that would scarcely make their discussion before the ordinary medical society quite appropriate, yet the material has a distinct value for medical men and especially for those who feel it their duty to let nothing that concerns medicine, its literature and history, remain outside their sphere of interest.

We have endeavored in the department of *"Byways of Medical Literature"* in certain issues of the Medical News during the past year to show how many things there are on the borderland between history, literature, science, and medicine that every wide-awake physician must be interested in and the announcements of the papers read at The Book and Journal Club have made us feel encouraged in our work.

We published recently Dr. Francis Packard's article on "The Resurrectionists of London and Edinburgh," written for the club, and our attention has recently been called to Dr. Achilles Rose's article, which, besides appearing in the Johns Hopkins Hospital Reports, has had the honor of translation into German for *Deutsche Praxis*. Dr. Rose's contention with regard to the formation of new terms in medicine seems eminently reasonable. It is clear that if all medical terms were formed on Greek models and from Greek roots this fact would greatly facilitate their ready comprehension by men of every language. There is, however, false simulation of Greek derivation that would be laughably absurd only that so many mistakes of the kind have already been made and the terms have secured a firm place in medical and other scientific literature. We cannot afford to laugh much at them, for they are facts and cannot now be treated less than seriously. Such terms as telegram, or telephone, are to the native Greek, according to Dr. Rose, ludicrous combinations of incompatible members. They are not of Greek derivation in any true sense of the word, but are in the doctor's expressive phrase only hellenophantic—seeming Greek.

It seems but right that if medical terms are to be formed supposedly from the Greek they should not be of this phantom character; neither should they be of such hybrid nature as appendicitis or jejunitis or cæcitis. They should be formed according to the genius of the Greek language as living scholars know it. Discoverers in medicine may well pause for a suitable word for their offspring and not baptize it by some incompatible combination of Greek roots that will prove a constant source of irritation to the cultured physicians of another generation.

If such care is not taken terms formed in this period of medical evolution will bear the stamp of a certain superficiality of knowledge that may be considered characteristic of the age. Words are telltale historical documents in such respects and convey information where it might be least expected. Dr. Roswell Park in his address before the medical department of Yale University, at the last commencement, on "Words, Men and Deeds," called attention to the fact that our present anatomical nomenclature reveals the difference between the searching depth of the Greek mind and the superficiality of Latin investigation. Most of the deeply situated organs requiring careful study for their discovery were given names by the Greeks. Good examples are hepatic, ethmoid, sphenoid, aorta. More superficial parts have Latin designations: temporal, frontal, parietal, costal, etc. A future student of medical philology may be enabled to trace a discovery to our era because of the hybrid name under which it is known. Most of us would prefer, however, not to think of our time as notorious for any such unworthy reason.

ECHOES AND NEWS.

NEW YORK.

American Gynecology.—The first number of this new periodical, devoted to gynecology and abdominal surgery, has just appeared. The Editorial Board is to be congratulated on the excellent appearance of this introductory issue.

Wireless Telegraphy in Medicine.—On its recent trip across the Atlantic, a titled passenger of the Kaiser Wilhelm der Grosse was taken ill with appendicitis. Drs. William T. Bull of New York, and Roswell Park of Buffalo, were aboard and treated him. An ambulance was telegraphed for while the steamer was 40 miles at sea and was in readiness at the arrival of the Kaiser.

Abatement of a City Nuisance.—District Attorney Jerome, Health Commissioner Lederle and President Vreeland, of the Interurban Railway Company, held a conference in the office of the former, last week, with the object of trying to come to some understanding regarding the storage battery fumes emanating from the Thirty-fourth street line. Mr. Vreeland explained that his company was getting ready to change the motive power of that line to the underground trolley system. Bids, he said, had already been asked for, but it would be impossible to make a change for at least eight months. Meanwhile he agreed to take steps to remedy the nuisance. It was said this was satisfactory to both the Health Commissioner and the District Attorney.

Consumptive Hospital Plans.—The commission in charge of the construction and maintenance of the proposed State hospital for consumptives to be located in the Adirondacks, met in Albany, July 30, with State Architect Heins. Howard Townsend, president, and John Seeley Ward, Jr., of New York city and Dr. John H. Pryor, secretary, of Buffalo, were present and approved Mr. Heins' plans for a two-story brick and stone building, to be constructed on the pavilion plan with an administration building in the centre. The hospital is to accommodate a hundred patients and is to be located at Raybrook, Essex county, between Lake Placid and Saranac. It is to be started under the appropriation of $100,000 made by the Legislature, it being the expectation that work can be begun this fall, so as to have the building ready for occupancy next year.

Eye Doctors in the Schools.—At the meeting of the Board of Education last week a letter was read from Dr. Lederle, the Commissioner of the Health Department, saying: "I ask your cooperation in some important work during the next school year. I propose to employ specialists for work not hitherto undertaken in this city. The most important part of the work is to be the examination of the school children for contagious eye diseases. During the last two weeks of the school year just closed I appointed twelve eye specialists to find out the extent of contagious eye diseases among the children. The experts examined 55,000 children in thirty-six schools and no doubt you will be surprised and shocked as I was to learn that no less than 6,670 children or 12 per cent. were afflicted with contagious eye diseases. Of this number 2,328 were suffering from the severest type of trachoma. All these children should be excluded from school."

See Editorial Comment and Report of Academy of Medicine elsewhere in this number.

The Establishment of a Private Psychopathic Hospital.—The need has long been felt for a private Psychopathic Hospital which would provide the special conditions for the observation and treatment of persons suffering from acute or transient nervous conditions, or the insidious initial stages of mental derangement. During the last few years this matter has been the subject of much public discussion. As early as 1897 an appeal for a Psychopathic Hospital was made by the former director of the Pathological Institute, and since then the project has been earnestly advocated by the New York State Board of Charities. The trustees of the New York Infirmary for Women and Children have recently received donations for the establishment of a Psychopathic Hospital with Research Laboratories in Psychopathology and Neuropathology, as a Department of the Infirmary. This hospital has been opened. Beds and private rooms have been endowed for patients under the observation of the Director of the Psychopathological Laboratory, Dr. Boris Sidis, and his assistants, Dr. Henderson B. Deady and Dr. George M. Parker. In addition to these rooms, the hospital offers to physicians the facilities of other private rooms for patients under their personal direction and treatment. Situated, as it is, in a large city, this hospital should prove a great help to the physician who is usually confronted with the alternative of keeping his patients at home, or sending them to a country sanitarium and away from his observation and treatment.

The rates for patients under the charge of their own physician are from $40 to $50 per week. Applications for the reception of patients should be made to Dr. Henderson B. Deady at the hospital, 321 East 15th street. Telephone 2922-18.

Dr. Alexander Lambert, Miss Julia B. de Forest, Philip Bartlett, and Miss A. B. Jennings, are the Committee of the Trustees for the Psychopathic Hospital.

To War on the Mosquito.—Dr. George A. Soper, whose excellent work in municipal sanitation has been widely recognized, and Drs. W. F. Klein and W. N. Berkeley have been commissioned by Health Commissioner Lederle to wage war on the mosquito. The wholesale extermination of the insect has become a regular study in the Summer curriculum of the Board of Health. This year Dr. Lederle will have a splendid opportunity for pursuing the war, because about twenty trained inspectors, who have for weeks been active in the Tenement House Department, were again turned over to him yesterday, and will assist him in his anti-mosquito crusade. There will be three methods employed. Either objectionable pools will be filled up or the water will be drained from them, or oil will be poured on them. The board has already ordered twenty-five barrels of petroleum for this purpose. The petroleum will be sprinkled sparingly upon the surface of the stagnant pools from the edges. Sprinkling cans purposely fashioned for the purpose, and which the Health Department already has, are to be used for doing this. It is Dr. Lederle's opinion that a pool in which the little "wrigglers" which develop into the mosquitos exist, is a public nuisance. Circulars explaining the duty of citizens in this regard are now being printed, and are to be distributed throughout the various boroughs. The Inspectors will also be called together soon to listen to a lecture upon the subject of the mosquito. In the Boroughs of Richmond and Queens the field of operation has already been laid out, and the inspectors have received some instruction upon their duties. At several points on Long Island, notably at Cedarhurst and Flushing, the work of mosquito extermination has already been begun by private enterprise. Commissioner Lederle said last week: "We are getting ready for the crusade. The work is interesting from a scientific standpoint. The bacteriologists who will aid us are men who have made the mosquito and malaria breeding pools a study, notably Dr. Soper, who did good work for Galveston after its flood. Others, too, who will assist are specialists upon the subject."

Obituary.—Dr. Jesse Bradford Losey, a practising physician of Conesus Centre, N. Y., for forty years, is dead. He was seventy-five years old. During the Civil War he served in the Twenty-second New York cavalry and rendered efficient service at the battles of the Wilderness and Malvern Hill. He was with General Sheridan through the Shenandoah Valley campaign.

Dr. John Edward Morgan, a retired physician, whose family owned the site on which Hollis, L. I., was built, died at his home, in that place, Monday, from kidney and liver diseases. He was forty-six years old and a wealthy bachelor.

PHILADELPHIA.

Eisner Memorial Home for Nurses.—Work has been begun on this home for the nurses of the Jewish hospital. It will accommodate 35 nurses and is to be finished by December 1.

Superintendent Geary Resigns.—The expected resignation of Superintendent Geary of the Almshouse was received July 29. It is said that Temporary Superintendent Smith will not keep the position permanently.

Death of Assistant Medical Inspector.—Dr. J. Aubrey Davis, since 1894 an Assistant Medical Inspector in the Bureau of Health, died July 31, aged 37 years. Dr. Davis graduated from the University of Pennsylvania in 1887.

Dr. Browning Objects to Award.—The attorneys of Dr. Walter C. Browning have filed exceptions to the finding of the court in his suit against the estate of Senator Magee. The exceptions are contained in 23 alleged errors in the finding of the court.

State Medical Examinations.—The report of the State Board of Medical Examiners shows that there were 405 applicants for license at the June meeting. Of these, 43 failed to pass, six withdrew, one was ineligible, and one was expelled for cheating.

Against Adulterated Food.—The predicted fight against the beef trust has been begun in this State by the Dairy and Food Department. Warrants against the Kansas City and other Beef Companies have been sworn out. Examinations of canned meats from many of the large packers have shown them to contain boric and sulphurous acids. Rigid search for such meats will be made in all parts of the State and arrests made without delay.

Washington to Adopt Philadelphia Filter System.—After a tour of inspection of the various filtration systems of the country, in company with a party of United States engineers, it is reported that Colonel A. M. Miller, Government engineer in charge of the Water Department, has adopted the specifications of construction of the system in this city as the standard for the bids on the proposed filtration plant for Washington, D. C. It will be about half the size of the Torresdale plant and will contain 26 filter beds.

State Medical Society.—The fifty-second annual meeting of the Medical Society of the State of Pennsylvania will be held in the Lyric theater, Allentown, September 16, 17, and 18, 1902. Dr. Francis P. Ball of Lock Haven is President and Dr. Cyrus L. Stevens of Athens is Secretary. The address on Medicine will be delivered by Dr. A. O. J. Kelly, of Philadelphia; the address on Surgery by Dr. George D. Nutt, of Williamsport; the address on Obstetrics by Dr. J. M. Baldy, of Philadelphia; the address on Hygiene, by Dr. Edgar M. Green, of Easton; the address on Mental Disorders by Dr. J. Moorhead Murdoch, of Polk; the address on Ophthalmology by Dr. G. H. Halberstadt, of Pottsville. Those desiring hotel accommodations should address Dr. Eugene H. Dickenshied, Allentown.

Volunteer Oculist Rebuffed.—The Times publishes the following: A Philadelphia oculist of National fame was returning from Pittsburg recently and had as a fellow-passenger from Harrisburg a young woman who seemed in great distress with her eyes. Thinking that a cinder or some dirt had been taken in, he stepped across the aisle of the Pullman and, politely informing her he was an eye-doctor, offered his services. She drew up haughtily and told him she could wait until reaching the city, where she should find a specialist "of some repute." Feeling duly crushed, he asked her pardon and resumed his seat. Five minutes after he reached home, a patient was announced, and he walked into his operating room to meet the same young woman, who told him she came to him on the recommendation of friends in Harrisburg.

Should the Coroner be a Physician?—The renomination of Thomas Dugan for Coroner has brought out the old statement that the office of Coroner should be held by a physician. A very competent writer in one of the daily papers, in an historical article on this subject, is disposed to answer the question in the negative. The last medical incumbent of the office, while a reputable and respected member of his profession, is said to have lacked that experience of general contact with men which enables an intelligent layman to dispose of non-essentials and to reach the pith and marrow of public business. His mind moved slowly by a scientific and logical method which often made the processes of his work tedious even when they were thorough. At one time the coronership of Philadelphia passed into the hands of two physicians in succession. Politics interfered with their administrations as they were said to lack in the faculty of management and in the art of keeping party mendicants from interfering with their everyday work. The contrast with later administrations was not favorable to the former. Politicians have not made the office here a burden to the taxpayers as in some other cities, the whole system being so inexpensive, comparatively, that there has been little disposition to amend it or to do away with the Coroner entirely as has been agitated in some places of late. The writer whom we quote, however, sees absolutely no good reason why that superfluous appendage, the Coroner's jury, should not be removed.

CHICAGO.

Appointment of Dr. H. H. Rogers.—Dr. H. H. Rogers, one of the lecturers in the Illinois College of Pharmacy, will assume his new duties as principal of the Northwestern Military Academy in September. He will continue to act as one of the lecturers in the College of Pharmacy.

Hospital Manager Fined.—Residents in the vicinity of 294 Ashland Boulevard won a victory in their fight to force the removal of a hospital at that number, when Justice Underwood fined Dr. Joseph Lee, who is alleged to be the manager of the institution, $50 on a charge of operating a hospital without a license. Witnesses said the screams and groans which emanated from the hospital at all hours of the night had had the effect of driving persons from the neighborhood.

Sanitary Inspection of Mid-summer.—Thanks to the publicity given by the press to the statement of the health department concerning the usefulness and the necessity for midsummer sanitary inspections in the tenement house districts, the Visiting Nurses' Association and the members of the senior class of Harvey Medical College have tendered their services. The Knickerbocker Ice Company has offered to furnish ice gratis to families recommended by the volunteer inspectors on orders countersigned by Miss Harriet Fulmer, Chief of the Association.

Impure Milk in Restaurants.—Health Commissioner Reynolds has started a vigorous campaign against the use of impure milk and cream in the restaurants, hotels and lunch counters throughout the city. As a preliminary step, cases will be started at once in the courts against 36 concerns which were shown by the health board's analytical experts to be using milk mixed with water or tainted with formalin. The present activity of the city officials was caused by the claim of the wholesale and retail milk dealers that all goods handled by them now reached the customer in a pure condition, and that all adulteration took place after the milk left their hands. While not entirely agreeing with the truth of this assertion, Dr. Reynolds thought that it would be only fair to look into the methods of the restaurant and hotel men.

Sewage of Chicago and the Drainage Canal.—The State Board of Health is just about to publish a third report on the sanitary investigations made by the Board of the Illinois river and its tributaries, and also the

Mississippi river. The first report, issued in 1899, gave the results of analyses made prior to the opening of the Chicago Drainage Canal, and the second, published in 1901, brought the results of analyses made down to April of that year. In the investigations in 1899 to 1901 the Illinois river, at its mouth, was found to be in better condition than most of its tributaries. The amount of albuminoid ammonia in the river at its point of entrance into the Mississippi was found to be far less than in the Mississippi at the same place, and the oxygen consumption markedly less. Practically no organic matter remained in the Illinois river to tell of the enormous pollution 320 miles above. In the opinion of the board, this remarkable destruction of organic matter was due to organic oxidation. The results set forth in the reports of 1899 and 1901 are confirmed and strengthened by the investigations conducted in 1901 and 1902, a report of which is about to be published. These investigations, however, were confined to the Illinois river at its mouth, the Mississippi river a short distance above the mouth of the Illinois, and the Missouri river at its junction with the Mississippi. The analyses revealed the significant fact that the Illinois river at its mouth contained less pathogenic and sewage bacteria than the Mississippi and Missouri rivers at the points named.

GENERAL.

Belgian Society of Surgery.—This Society will hold an annual meeting in Brussels Sept. 8, 9 and 10. The deliberations of this session will be devoted exclusively to the questions of appendicitis, treatment of fractures and asepsis and antisepsis of the hand, the area of operations and the suture materials.

A New Sanitarium for New Jersey.—A private Sanitarium has long been needed in New Jersey, and we believe the one just opened at Summit in that state by Dr. Eliot Gorton, formerly and for fourteen years, first assistant physician in the State Hospital at Morris Plains, will be generally appreciated by the profession in this community.

Smallpox Hospital for the Oranges.—Orange, West Orange, and South Orange have combined to build an isolation hospital. John T. Platt has been elected President of the Joint Commission, Abel L. Mooney Secretary, and Dr. J. Minor Maghee Treasurer. Plans will be prepared for the building immediately, and work will be started Sept. 15. The site will probably be on the Orange Mountain.

Statue of Pasteur Unveiled.—A statue of Pasteur, says the Paris correspondent of The Times, was unveiled August 4, at his birthplace, Dôle, Jura. Triumphal arches were erected, and on most of the houses there were garlands of flowers inscribed "To the Benefactor of Mankind." The Minister of Commerce, M. Trouillot, and the Academician Thureau-Dangin delivered fervid orations on Pasteur's discoveries and his noble character.

Health of Prof. Virchow.—According to the N. Y. Times it is reported that Prof. Virchow has suffered another accident and is critically ill. Prof. Rudolph Virchow, whose eightieth birthday was celebrated last October, both in this country and in Germany, was hurt last Jan. 15 by a fall as he was leaving a street car in Berlin. The injury was not of a serious nature in itself, but the great age of the eminent scientist made it dangerous. In the latter part of January Prof. Virchow was very ill, as a result of the fall, but his recovery followed.

Health Farm for Tuberculosis.—The Young Men's Christian Associations of Colorado have united in an effort to establish a "health farm" for convalescent consumptives, to be administered in cooperation with the National Hospital for Consumptives at Denver. An unimproved sixty-acre tract of land sixty miles west of Denver has been purchased. One-third of this tract is above irrigation, and particularly well suited for the location of buildings. The residents will use for sleeping purposes tent cottages, which are deemed the most desirable and healthful for men with incipient lung trouble. It is the plan of the committee to charge each resident a moderate but definite sum for tent cottage, meals, laundry, and other privileges of the settlement.

SPECIAL ARTICLE.

THE MEDICO IN CIBIRIA ("SIBERIA").

OBSERVATIONS OF THE PROFESSION BY A NON-PROFESSIONAL OBSERVER.

BY L. LODIAN,

OF NEW YORK.

INSPECTION work detained the writer in Cibiria for one year, traveling from the Pacific overland to the Urals; then another year followed, traveling from end to end of Russia proper. I was often brought into contact with medical men in Cibiria and Russia, frequently putting up at their log-houses as a choice between camping-out under the rain-soaked tent, or sharing the bugs of a Cibirsk (medico's temporary quarters).

The proper spelling of the word is Cibiria (from Russian Cibipia—their *p* being our *r*), and this has been followed throughout the present article.

I would, at starting out, ask the indulgence of the reader, to bear in mind that I relate only what I saw and was told, and will leave the reader to form his own opinions. And I feel pretty certain the expressed verdict will be, at the end, "an interesting paper"—although there is little to learn from Cibiria professionally. Further, it is believed this is the first article to appear in print on professional life in Russia's Asiatic dominions. A search of the various indices medici for data on Cibiria will be in vain.

The regular medical staff of the Trans-Cibirian railroad, receive (considering the cost of living) poor pay. A bpach—(which is pronounced brach)—or physician, receives but 100 to 120 pybli (pronounced rubli) per month; and his *felchep* (from the German felcher) or aide, gets at most only half that. This "aide" is indeed very much of an aide or assistant in Cibiria. It goes without saying that he—like many other "assistants"—not alone assists, but practically does all the work. If there is a midnight call to a mishap among some of the railroad employés, it is always the felchep who has to turn out. The doktop, or chief, must not be disturbed. A pretty turn-out it is, too, for all concerned—to have to leave your warm bed and snug room at 1 a.m., mount the dpizina (trolly) and painfully face the arctic blasts of a temperature 20 to 35° below zero C., in order to reach a plate-layer's wood-hut between stations seven or eight miles, this is a common experience of the felchep.

The felchep is usually a man who has been unsuccessful in his diploma aspirations, or an exiled medico, or a railway pharmacist who has the office of felchep gratuitously inflicted on him in addition to his ordinary work. His diminutive salary of $20 to $25 monthly is, fortunately, not reduced by rent, or firing, or lighting, which are free. Same, too, with the physician, who is often a man with half the years of the felchep.

THE CIBIRIAN RAILWAY SURGEON.

The railway surgeons along the line, located about every twenty-five decimal leagues apart (1 d. l. equals

6¼ statute miles), are generally uniformed army surgeons who have been drafted from Russia, on increased pay, across Cibiria, and mostly combine the offices of physician and surgeon. But the increased pay is still poor—about 150 pybli (say $80) per month; and you can do more with $40 in America than the equivalent of $80 in Cibiria.

FIELD AND RAILWAY WORK.

Under the questionable paternal system of government prevailing throughout Russiadom, the passing or cursory medical assistance prevailing on all the state railroads is one of the few redeeming features of the "fatherly" slaf administration process. The service is entirely gratuitous to poor and rich alike. There has been during the present years a big hegira of poverty-stricken Russian peasants to Cibiria—a word which, a decade ago, sounded to them like penal servitude. The migration is somewhere near a quarter-million annually. I have often observed their lot—ignorance, improvidence, hospitality, superstition, devotion, are some of their characteristics. Among those crowded shoals of migrants, traveling in plank-seat box-cars, the mortality among the babies will rival that of a British concentrado camp in the Transvaal republics. It is precisely among these emigrants that the medico and felchep in Cibiria find their chief work cut out for them. They are usually prepared for the cases, since it is customary for telegrams to be sent in advance (also a free service) by the station нachalнik (chief), at preceding stopping stations. The felchep at the minor stations will go through the train, quickly ascertain the trouble, do what little he can in the limited time the train stops, and advise ahead. This method saves delaying the train.

On arrival at the station advised, the doctor will make his superficial diagnosis, and instruct the felchep as to remedies to be supplied. If there be a hospital among the station buildings, and the case warrant it, the patient will be turned over thereto, if practicable. The hospital attention is also without charge. I use the qualifying expression "if practicable," for there may be many reasons (too numerous to go down here) between physician and patient and parents as to a more or less prolonged stay-over at the hospital. So of course the Cibirian medico governs himself according to circumstances.

Some of the Russian words in this paper have their pronunciations in parentheses. This will give a good idea of the difficulty of mastering the language.

CIBIRIAN HOSPITALS.

The Cibirian hospital is, except in a couple of big towns like Ipkytck and Kpacнoiapck (pronounced Irkutçk and Kracnoiarçk,—the *c* having the sound of our *z*), built of wood—whole tree-lengths quickly planed by hatchets on upper and lower sides only, and mortised into each other. Maybe not a nail will be used in the construction of the walls. The interstices will be filled with a refuse vegetable fiber resembling jute, or very fine or downy hay. It harbors the swarms of bugs with which Cibiria houses abound. I have been through both prison and civil hospitals, and perhaps the reader will be surprised to learn they are not nearly as bad to-day as when described by George Kennan over a dozen years ago. What Kennan wrote was true—too true; in fact, things were really worse, if anything, than Kennan made them out to be. My informant was a hospital medico who had been chief at one of the prison *rocnitali* during a visit made by the *Century* envoy: he had read the surreptitiously-printed Polish edition of Kennan's masterpiece, and found that Kennan had, if anything, understated the truth.

CIBIRIAN PRISONS.

Going through the Cibirian prisons and hospitals, I noticed everything scrupulously clean. I was not a "saw-him-coming" visitor, since I had no pass to visit a single one of any such buildings, but, being a guest for a day or two of the hospital *bpach*, was invited by him to visit the place. If a prison hospital, it was a sad sight to see the patients doubly crippled by disease and by the legcuffs they still wore, unless the physician saw cause for having them removed. All would stand up—if their state permitted—by the side of the bed, as the medico passed. This was more as a customary salute than anything else. Knowing his cases well, he was through with the inspection in five minutes. This was a "let-getting-well-enough-alone" *bpach*, and I did not blame him for thus speeding through his dozen prison patients.

POPULAR MALADIES.

Next we entered an isolated ward; there were four men confined there. Why alone? The old story. Syphilis is so diseasing the slaf population—scarce even a remote village being free from it—that it is becoming a serious state question, and has largely occupied the minds of the faculty at Petersburg. Complete isolation until cured is one of the suggestions now being (as we have just seen) followed out strictly, even in a wooden hospital in the wilds of Cibiria.

There were, for a wonder, no smallpox patients in the one empty ward reserved for that purpose. The ravages of this disease have not been particularly fatal to the hardy Cibirians, except to their faces; almost one-third the people are pitted. Lung troubles are very rare. Even the Russian doctors sent in recent years to Cibiria, expressed to me their surprise in this regard. The climate is so dry and severe, that feeble-chested people from the transural are either soon killed off, if too far gone, or, if having enough vitality to stand the building-up process, are permanently cured.

EMASCULATION OF SYPHILITIC SUBJECTS.

The syphilitic taint which is permeating slaf blood has in recent years been brought before the council of state. What is to be done? A drastic remedy has been proposed, and, although not on the statute-book, is, I believe, as quietly and expeditiously carried out as a modern removal of the vermiform appendix. I say "believe," because in different parts of the Russian union I was so often thus informed, and credibly, that "there must be something in it." I refer to the castration of syphilitic subjects, *nolens volens*. There is no gainsaying the fact that the remedy is a specific one, and, on the subject operated on, it is pretty certain his career as a propagator of venereal diseases is effectively checked.

But the Russian castration idea is an old one. Even in our own America, castration has been proposed for putting a stop to the procreative faculties of professional criminals. And one of the salient recommendations proposed and carried to unanimity at the international convention for remedying the Jew-evil, held at Paris two years ago, was for joint-action by all countries in emasculating the Jew residents.[1] And the proposition actually came from the American delegate.

But, however, efficacious these remedies may be, public opinion is not yet ripe enough for such drastic measures. It may be so twenty years hence.

CIBIRIAN NATUROPATHICS.

The medicos of the "land of dreadful distance" would sometimes speak of the help extended by nature in

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[1] Dixieme Convention Internationale pour remédier le juif-mal, Paris, 15-18 May, 1900, report de la convention.

Cibiria in the convalescing of their patients. "They either get well quickly or die quickly—in the latter case, saving us much trouble." Nobody is more likely to appreciate the latter condition in a hopeless case, than the government-salaried *bpach.* I dwelt at length on the remarkable purity and dryness and phenomena of Cibirian climatic conditions, in the now-defunct monthly, *Climate* (St. Louis), a couple of years ago, but, still, I could never conscientiously recommend Cibiria as a health resort, in view of the hard living conditions and lack of civilized comforts.

WHENCE THEY GET THEIR SUPPLIES.

The medical men drafted across Cibiria are mainly diploma people from Petersburg, or from southwest Russia and Polonia, who have taken their degrees at the capital. A few understand our own language, many speak French, but most talk only German and Russian, with the necessary complement of Latin. From what I learned of them, as a non-professional man, I should call them a representative body of men, judged by native standards. Many have studied in the capitals of Europe. In fact, the surgeons rely on the foreigner for their outfits. Surgical apparatus comes largely from Paris firms, also from a few Berlin houses. Evidently, Russian-made instruments of precision are not in favor with the Cibirian practitioner. The physicians and felcheps draw their supplies from the Government pharmacies located along the line, where the physician or felchep (aide) are practically often one person, as pointed out by the writer in "The Drug Calling in Cibiria," appearing in the May issue of last year's *Druggist's Circular.*

THE POLAK MEDICO LEADS AMONG SLAFS.

They are of various nationalties—but all slafs—are the physicians in Cibiria. There is the Russ, the Polak, the Serb, the Bulgar, etc. Of course the Polak "leads them all," both intellectually and in professional qualifications. The administration at Petersburg will sooner give a position of trust to a Polak than to a Russ, provided it be far enough away from his cherished Polonia —for the dream of the Polander for independence is not dead. Don't make any mistake about that! I did—so hasten to enlighten the reader. The Polander is playing a quiet waiting game. Like the Filipino (who will one day see his republic established) the Polak is content to bide his time, and it is due to the Polish mother that the heroic old spirit of Koscziuszko and Pulaski and Poniatowski is kept alive.

WOMEN PROFESSIONALS IN CIBIRIA.

The *nobibalnaia babka* (midwife) is an authorized institution in almost every Cibirian and Russian village; in various towns you will find women aiding in the hospitals and pharmacies—some of them being exiles who are thus earning a pittance of Russia's borrowed money; but I never came across a woman-practitioner in Cibiria; although in Russia, on the railroads, the officially-maintained midwife for the railway employés' homes is a feature in slaf economics. And they have, at times, no "soft snap"—having to respond to calls at any hour of the night. At one lonely house in the forests where the commission halted for the night, seven miles from the station, the *babka* came over the snow at 3 a.m., and had a lively towel-handling time till daylight. Dboiнik (twins)!

SOME SANITARY AND ECONOMIC CONDITIONS IN THE HOMES.

Cibirian women, as a rule, keep their homes scrupulously clean. If of the fairly-well-to-do-class, they employ a village help, who sleeps in her clothes in the kitchen. There is never or rarely a thought of giving a domestic a room to herself. The houses are of wood, one story high, averaging three rooms and a kitchen. Every *dom* (home) almost is liberally provided with bedbugs, which are so big (about three times the size of the American commodity) that the cats, which like the odor of bitter almonds and have a habit of chasing and eating and subsisting on bedbugs! The bugs breed in the interstices of the wood-walls.

The families are usually big—too big. Girls predominate, which is one evidence of the patriotism of the Cibirian women. The names are nice-sounding—Lena, Maña, Taña, Teisa, Olga, Anastasia, Neuta, etc.

Babies are in happy evidence in a majority of the homes, and their only cradle is a box hung to an elastic pole suspended from a rafter. This rocks the baby up and down. The practice of getting up at night and walking with the baby is happily unknown.

Washing clothes is performed, as in our country districts, over the tub; but the mangling or ironing in Cibiria is unique. A sheet, for example, is quickly wound up on a round pole the length of a blind roller, laid on the table, and rolled back and forth by hand under a flat short lath of wood. It is amusing to see how well this primitive process takes out the creases.

HYGIENE OF THE PERSON.

Odd-looking but universal is the practice of Cibirian and Russian workingmen to let the shirt hang down on the outside of the trousers, with short coat worn above the shirt. Many Cibirian physicians even make their village calls thus costumed.

One of the minor glories of Russia is the afternoon tea, with the lady of the house presiding over the steaming samovar. Attired in that snow-white light woolen costume, empire style, she looks—if of good figure—the poetry of civilization. Among the poorer classes (it is most undemocratic and anti-republican to say "lower classes" in socialistic-absolutist Russia) a queer custom exists, when breaking the compressed tea so much used in Cibiria, of putting it between the teeth and breaking the hard and compact mass between the incisors, then letting the pieces drop from the mouth to the *chinik* (tea-pot),—in succession serving the infusion to the guests. This may not be "chic," but all the same the foreigner appreciates Cibirian hospitality. Another custom is as follows: If a guest has left any soup in his plate, to pour it back in full view of everybody, into the soup-tureen, whereupon it is sent back into the kitchen to be incorporated into the next meal's soup. Last thing of all at a meal, small glass bowls of tepid water are handed round, for rinsing out the mouth, and there is for half-a-minute the unseemly gurgling of water heard gushing about inside the closed mouth; it is then ejected into the same bowl, at table, in full view of everybody. At first, in my innocence, I thought this water was to drink, yet, marveled why it had been given a few drops of menthol (peppermint), so I gulped it down, then felt my cheeks glowing warm when I saw the real object. But still, I could never bring myself to that—rinsing out the mouth at table. The toilet-table or bedroom is the proper place for that operation.

VIRGO INTACTA.

In central Cibiria I was informed of a peculiar after-marriage custom. The husband carries the blood-stained chemise of his wife to the priest in proof that she was *a virgo intacta.* This, of course, is not absolute proof of a woman's pre-marriage virginity, but it satisfies the Cibirian mind.

"LIVE AND LET LIVE"—AUTOMATIC SEWAGE REMOVAL AND FERTILIZING.

In Cibirian villages nothing is wasted. The privies are open at the rear to the pigs, who keep the place "religiously" cleaned or cleared of contents. The pigs in turn wander over the fields, and fertilize the pastures. One medico on the za-Baikal informed me of a singular case he had recently been called to. A mujik had gone to sleep while at stool, and the pig below, perceiving the pendant bag and testicles, had reached up, instantly took a firm grab, and in a twinkling had torn away and bolted the whole appendage. The castration was complete. Despite the shock, the man soon recovered. Horse-droppings on the highway are nibbled up by the cows; and when a person urinates on the grass, a bovine will hurry up to eat the urine-soaked herbage for the sake of the salty deposit. And than Cibirian ham and milk and butter, you will get none better-tasting on the globe. In India, I remarked the same thing in regard to water-closet removals; and in Japan the rice-paper used as a toilet article, is saved in the privies in a special box, and, when a sackful has accumulated, the unsavory excrement-crinkled mass is sold to the paper mill and again converted into pulp and then again made into those rolls of delicate Japanese rice-paper which are cut up both for toilet paper and (in larger sizes) into the unsatisfactory makeshift table-napkins seen in some Manhattan restaurants. Queer, the uses to which that rice-paper, with which we wipe our lips, has been placed!

WHERE MEN DON'T CARRY THE BABY.

It is considered effeminate in Cibiria for a man to be seen on the streets of a town or village carrying his baby. That is considered strictly a woman's duty. So—being fond of infants myself—when I would ask to be allowed (during a short country walk) to relieve a mother's load somewhat under the warm sun and "carry the baby," I was looked upon as "half-daft." But I did not mind what was thought. To a man with a soul, what more charming and sacred than to be entrusted with a baby-girl?

The student of pediatrics will be interested to know that the rigorous Cibirian climate does not permit of lingering diseases among infants and young children. They either grow up strong or go down fast—into mother-earth.

DOMESTIC LIFE IN CIBIRIA—SOME OBSERVATIONS IN MEDICOS' HOMES.

In her domestic life, the slaf woman has a less happy time of it than the American wife. Her husband—outwardly a "good-enuf" fellow—has a weakness for playing the petty tyrant over his wife; and the man who does that always betrays a limited mental intelligence. I knew one brute, at Ipkytck, central Cibiria, who locked his wife up in the house evenings, as a matter of course, with her baby as her only society, while he went to his club for the night; and, if he didn't turn up for a couple of nights at the conjugal couch, his excuse was "he had slept at the club" (or somewhere else).

Before marriage the Russ is, like the Latin (the French, the Iberian, etc.), the height of attention and gallantry to women, and particularly his fiancée. After marriage, he considers her only good enough to use, and shows more "gallantry" to somebody else's wife or sister.

But there are exceptions, thank the Lord. Homes in which the wife rules, and all such homes I have visited remain to the memory as a happy vision. After prolonged observation (but not actual experience) I have come to the conclusion that between a home in which the husband is both master and mistress and one in which the wife is both mistress and master, the latter state of affairs is distinctly preferable.

SOCIAL PURITY IN CIBIRIA'S REMOTEST VILLAGES.

The men and women are, in the most distant villages of eastern Cibiria, from infancy always in each other's society, consequently social purity is a feature of Cibirian life. The more the sexes are parted—as in España (Spain)—the greater the curiosity and immorality. In some remote villages of Cibiria, men and women use the same big bathroom in common. I have frequently been assigned a couch in the same room with husband and wife and grown-up daughters. Here familiarity breeds—respect. But the introduction of criminals, mining hordes, and poverty-reduced emigrants has in recent years wrought havoc with this rustic simplicity.

A sympathetic type is the slaf woman, be she Polak or Russ. Many the little kindnesses I have received from them during a couple of years of harassing inspection work in their lands, and I still continue to feel grateful therefor.

WHAT THE CIBIRIAN MEDICO'S FURNISHED HOME IS LIKE.

To describe briefly the furniture in the general run of Cibirian homes, there are in the living-room a couple of tables, eight or nine chairs (in view of the usually big families), wall-cabinets for tableware, liberal supply of framed pictures (battle scenes, wolves chasing sledges in winter, etc.), sewing-machine, big corner clock. In the parlor, or best room—for the Cibirian housewife is as mortal as any other woman, and must have her "best komнota" (chamber): divan, with rugs and furs, ornamented vases on the tables, side-cabinets containing table services, the best samovar (every house has a couple of these cheerful tea-producers—or rather they make the water hot for the tea), and, unfortunately, too many of those vertical little tables which appear to be made to be knocked over, especially when loaded with a lighted lamp. Kerosene is the common illuminant. Musical instruments—if any—are naturally placed in this best room. Scarcely a home but what will have its music of some sort—guitar, harmonica, reed or barrel organ, perforated cardboard pianino (or little piano), or maybe an old grand, introduced thirty years ago by the exiles, the ivory keys worn through to the wood, and naturally the whole thing woefully out of tune. Tuners are decidedly an "unknown quantity" in Cibiria.

Finally, the bedroom has the two beds for husband and wife (the couple wisely never pass their sleeping existence on the same couch), cots for the children, toilet table, plain chairs, and the inevitable *ikon* (gilt-framed saint) in one corner of the room. It is remarkable how some of the homes are made beautiful with very little material, and by persons in quite moderate circumstances, with an income of, say, only 50 rubles monthly (about $25). I have in mind particularly, as I write, the beautiful little home of Ceñopa Cbift, at Kokyi, on the trans-Baikal; that of engineer Gendre, at Ob, central Cibiria, and that of Laypa Elarin, at Openbypr—all representative slaf homes on a modest scale.

THE UNIVERSAL BATH IN CIBIRIA.

There is one characteristic of which the Cibiriak (or Cibirian, as the western world terms him) can be justly proud; he always owns his own house. Even in the bigger towns of the remote interior, you will find the same condition of affairs. The poorest mujik, too, will run up a bathhouse in his back-yard, where he can at least once a week take the piping-hot Russian bath, of the sort which have given the Russian bath its well-merited good name.

The houses of the majority of the inhabitants are four-roomed, which includes the kitchen. Here the great stove-oven for which the Russki peasant's house is noted is located. It warms thoroughly the entire house. Sometimes, when I have entered a house, and, seeing nobody, called out "Ctop cdez?" ("Anybody here?"), a head would peep forth from the broad shelf over the stove, just under the ceiling. There the whole family had gone to bed!

WHAT TO WEAR IN CIBIRIA—THE VIEW OF NATIVE PHYSICIANS.

In the American professional press in recent years, I have read a deal about what to wear in winter. It may interest the reader to learn the views—or rather view—of the Cibirian exile medico who has been forty years in the land. There is only one suitable textile for keeping out the Cibirian cold, and that is wool—pure wool. If the advocates of linen were to try to get through a Cibirian winter with linen, they would change their opinion in ten days, and the doubting ones would have no two opinions at the end of a week. It stands to reason that linen, even if full of air-spaces, is a poor non-conductor; silk is as bad; while undyed wool is the best non-conductor of all textiles.

Also, it may not be generally known that white woolen costumes are warmer in winter than dyed ones, but the cold is not felt so oppressively in a black garment in winter as is the heat in summer; so white garments in Cibiria in winter are not in vogue for outdoor wear, although quite a number of women prefer them for indoor use. All medical men will acknowledge, from the hygienic viewpoint, the incontestable superiority of undyed goods over dyed; but the unremitting care that has to be exercised to keep them, not alone clean, but in good color (which latter task is often more difficult than the simple cleansing by washing), will always operate against white or undyed clothing as wear, year in and year out, for both indoor and outdoor use.

WHITE COSTUMES IN CIBIRIA.

It will probably be news to many readers to learn that the short Cibirian summer is so warm that both men and women resort to white costumes for at least three months of the year. You feel the need of the white garment—just as in warm Hindustan. There are a number of too-warm days in Cibiria in June, July and August; yet the nights are always cool, so Cibiria is, in Russia, recommended as an ideal spot for honeymooning couples.

MEDICAL AMENITIES IN CIBIRIA.

It may naturally be asked, in a descriptive article like this, what are the diversions of the medico in Cibiria? They are precious few in the wilds of arctic Asia. If among the mines of the Lena river or of Kamchatka, a couple of thousand miles from the nearest points on the trans-Cibirian railroad, the medico will probably find himself eight hundred to one thousand miles from the nearest theatre—and a fifth-rate one at that. The Russ is a great animal for society; he feels it to be the life of himself. If stationed at the mines with his felchep, while he is supposed to be always at his post, human nature is too strong for him, and he easily finds an excuse for frequenting the nearest village or townlet, usually fifty to eighty miles away. Thus, of course, the felchep has to do all the work, and the medico contents himself with a weekly trip to the mines, preferring a Monday, although if the Monday finds him indisposed, he will tranquilly defer his visit, not to the morrow, but to the following Monday.

In the townlets, the medico spends his leisure hours hobnobbing with the politicas, who have their liberty, provided they do not go beyond the jurisdiction of the governor's territory. As this territory may be as big as Texas, it follows they have considerable latitude. The exiles form a social club and meet in one of their homes; the medicos are always welcome, and instead of discussing the reformation of the Russian constitution, the talk is mostly small banter, much laughter, tea-drinking, cigarette-smoking, fodka-imbibing, card-playing, and the inevitable gambling. They live well on nutritious foods—meats, cereals, and dairy and farm produce, and (near rivers) fish are cheap and abundant. It is well they have an abundance to maintain vitality in so rigorous a climate.

Those medicos who, through no fault of their own (being kept at their mining posts by sheer distance from the nearest village—maybe three hundred miles), remain on duty all the year, devote their off-hours to shooting, fishing and compulsory reading, and commiserating with their felchep or the isolated political prisoners on their mutual hard luck.

MINING MEDICOS.

In Russian mining law, every mine operated—even every prospecting or surveying party detailed off in the search of mines—must be provided with a physician, properly equipped, salaried and housed entirely at the expense of the mining people. There are numerous regulations—too space-occupying to be quoted here—regarding the medical staff and equipment of mining parties. Of course, small affairs, numbering less than half-a-dozen men, are exempt, while mines employing hundreds have increased medical provision.

One mining medico complained to me that salary-day (first of month) with the men was regularly followed by *cifilitik* eн ("syphilis day"), as he expressed it. Harlots frequent the mining camps and prey on the men's earnings; and every month, a few days after exposure, various of the men will line up with the regularity of clockwork outside the fapmacia or anteka (pharmacy) for relief.

THE NABOR-MEDICO.

In the Cibirian towns, the private practitioner who is regarded as a нabob (nabob) among medicos, making 500 pybli per month (equaling $250—a big sum there), does his visiting in a swell-embroidered gown or garb which would make a cardinal smile. He is usually of ample form,—and no wonder, for with every visit the *bpach* is supposed to partake of the good things set before him without question. Imagine eight or nine *zabtpak* (literally, to de-fast) before he goes home to lunch!

TONSILLOTOMY DOES NOT PREVENT TONSILLITIS—SOME CIBIRIAN EXPERIENCES.

Ere closing, I should like to relate a personal experience with tonsillitis in Cibiria. Should the tonsils be removed? Does it prevent tonsillitis? After my own plight, I think the profession ought to hear the brief story. The writer's tonsils were, by physician's orders, guillotined or excised at the Cincinnati Public Hospital, after the subsiding of an acute tonsillitis in November, 1893. Six weeks later, in December, he had to enter the Reading, Pa., hospital with the stumps of tonsils inflamed worse than ever before. Cure came only with the bursting and discharging of the pus. He traveled during 1894 and 1895 in Mexico, Polynesia, Australia, Hindustan, Japan, Korea, without attack; but in eastern Cibiria, July, 1896, the old evil recurred—tonsil stubs inflamed and caused exquisite torture. All remedies failed and relief came only with bursting. Five months later, in the forests of central Cibiria, another vicious attack occurred, reducing me to distressing weakness. The misery of pain trying to imbibe some milk was worse than the pangs of hunger and weakness. All remedies failed and relief came only by bursting. Two weeks of suppuration followed, the pus bursting through and oozing from the neck; and there I was day after day, sooner than be cooped up in camp all day long, progressing with the railway inspection work through the deep snows and icy blasts, until the thin silk handkerchief designed to absorb the pus was (pus and all) frozen to the sore. No ill-effects followed. It is one proof of the extreme purity of the Cibirian climate.

A year later, among the forests of Poland, another vicious attack occurred. The disease could not have been worse. All remedies failed. Relief came with bursting. Gargling, aconite, washes, poultices, potash lozenges—all failed. The couple of weeks' distressing weakness which followed was almost as bad as the tonsillitis itself.

COLLARS CAUSE TONSILLITIS.

About this time I was advised to abandon collars, my Russian informant stating that the specialist Morell Mackenzie looked upon high collars as a prolific cause of enervating and causing throat trouble; and, since having the courage to discard collars and wear the plain white neckerchief, I have been free from tonsillitis for years. It is true that last winter in Manhattan the old trouble reappeared in all severity, but without the vitality-sapping after-effects; but it is noteworthy that four years had elapsed, under the collarless régime, since the previous attack, compared to the six weeks' or six months' interval-attacks of the collar-wearing epoch. My thanks are due in print to the Russian physician for his advice.

A PECULIAR RESULT OF TONSILLOTOMY.

While tonsillotomy did not prevent tonsillitis, it gave me a peculiar musical faculty—the ability to imitate the violin ventriloquially. So identical is the imitation that the deception has often provoked a family audience to laughter. While staying with Tolstoï, by invitation, at his estate near Tyla, central Russia, I often used to accompany him with the vocal violin as he played the piano.

CIBIRIA COMMERCIALLY CONSIDERED.

To interest those who supply physicians' and surgeons' needs, and in reply to many inquiries addressed me since my return as to how to reach the Cibirian drug and supply trade, I would state the procedure is very simple. Let firms address through the mails their illustrated catalogues and price-lists to representative Cibirian importers and medical men,—always stipulating, however, for cash transactions. The addresses can be obtained from various foreign directories. Your ordinary catalogues will be understood. No need to go to any expense printing special foreign-language catalogues.

SOCIETY PROCEEDINGS.

THE NEW YORK ACADEMY OF MEDICINE.

Regular Monthly Meeting, Held Thursday, June 5, 1902.

The President of the Ophthalmic Section of the Academy, Dr. Weeks, in the Chair.

The scientific business of the evening consisted of a symposium on the contagious eye diseases in New York City and the necessity for prophylaxis, especially as regards school children.

Contagious Eye Diseases in New York.—Dr. Richard H. Derby said that the best report made on contagious diseases of the eye in the charitable institutions of New York City was that made in 1886 by the special committee appointed for the purpose by the New York Ophthalmological Society. A complete report of the four contagious diseases of the eye was made and a startling state of affairs was found to exist. Fifty-one charitable institutions in New York City at that time contained 12,000 inmates. Of these over 3,000 suffered from contagious ophthalmia in some form. A report containing these statistics was presented to the legislature and a law was drawn up to prevent the further spread of the diseases and to introduce measures for the diminution of that already existing. The main features of that law were the prohibition of over-crowding and the requiring of a monthly report to be made to the Board of Health of the number of cases of contagious eye disease to be found in any institution.

Condition after Fifteen Years.—After fifteen years a comparison of the conditions that obtain with regard to contagious eye diseases is very encouraging. Most of the institutions are so arranged and regulated that there is very little chance of contagion within their walls. About 20 per cent. of the cases admitted to some institutions have contagious ophthalmia on admission, but this is soon reduced by segregation and by the fact that no bath tubs or basins are provided for common use, that patients are allowed to wash only by the jet and shower methods and that every inmate is required to have his own towel.

Dangers in New York Schools.—Dr. Derby has recently made a series of examinations in public schools in New York. Of 1,045 pupils examined in one school, 201 pupils were found to be suffering from contagious ophthalmia of one kind or another. Sixty-six of the cases were of so severe type as to call for operative procedures before a cure could be reasonably expected. In another school 700 pupils were examined and over 15 per cent. of them were found to be suffering from contagious ophthalmia. Sixty per cent. of these cases were of severe type. The statistics show how dangerous for the future eye-sight of pupils is the present condition of the schools in certain parts of New York.

Prophylactic Measures Suggested.—Dr. Derby said that the present alarming condition of affairs calls for prompt action in order to avoid severe evils. Systematic inspections of schools must be made at once by competent physicians in order to decide as to the presence of ophthalmia, and the Board of Health should demand the institution of precautions to prevent further danger of contagion. Under the present circumstances the presence of a pupil in school, even though there may be some slight symptoms of eye trouble, may be tolerated by the teacher at a time when there is distinct danger of contagion. It is on the teacher and the chance superficial inspection thus given that the report of cases to the school physician depends. External examination of the eyes from a distance, as is well known, is not sufficient to decide as to the presence of contagious ophthalmia. The only thing that gives any assurance of proper diagnosis is the direct eversion of the lid. Unfortunately there is no hospital to which such cases can be referred and when sent from school they may well prove foci of infection at their homes in tenement house districts. One of the most encouraging aspects of the present situation in regard to communicable eye diseases is the reduction in the number of blind under the care of the city. The number of blind in our institutions has been actually reduced by 47 during the last fourteen years, though there has been a very large increase in the number of inhabitants during the same period. City figures are much better in this respect than the statistics obtained from the country. While only one in 2,500 of the city population of New

York State is blind, the rural counties furnish about one in 650 of the population. The reason for this is that eye diseases of many kinds are neglected in the country, and especially in children, with a consequent loss of sight. In the city our dispensaries enable us to cure many of these ailments, or at least prevent total blindness.

Declaration of Health Commissioner.—Dr. Lederle in a letter to the Academy regretted his absence from so important a discussion, but stated that he knew of the investigations that had been made by Dr. Derby and considered that the statistics demanded immediate action on the part of the Board of Health. The New York City Board of Health will do everything in its power to prevent the further spread of contagious ophthalmia and Dr. Lederle suggests the placing of these diseases among the contagious diseases legally required to be reported. He also says that a careful census of the public schools will be made before the close of the present term, so that the Board of Health may be ready with its plans for the suppression of the disease during the next session of school. The situation as outlined is one that calls for action at once and demands also that no effort shall be spared to meet what is evidently a serious and urgent danger.

Forms of Contagious Ophthalmia.—Dr. Carl Koller read a paper in which he discussed the modern methods employed in the prevention and treatment of trachoma and other forms of contagious ophthalmia. Dr. Koller considers that the most important contagious eye-diseases are gonorrheal ophthalmia of the adult, gonorrheal ophthalmia of the new born, diphtheritic conjunctivitis and trachoma. Of these the acute diseases are perhaps the most serious because they are likely to cause blindness before the disease has run a long course. Chronic contagious ophthalmia, however, is not without its dangers, runs often an extremely insidious course, is very obstinate and intractable, remaining for years sometimes capable of disseminating the disease and is consequently to be greatly feared.

Gonorrheal Ophthalmia of the Adult.—In this disease the stage of incubation may last from three hours to three days. Where there is suspicion of gonorrheal infection of the conjunctival sac immediate instillation of a two-per-cent. nitrate of silver solution will prevent the development of the inflammation. This remedy is useless, however, and may be harmful if symptoms have already begun to show themselves. Once the diagnosis, gonorrheal ophthalmia, is made the patient should be strictly isolated and the nurses and doctors should wear protecting spectacles. If but one eye is infected, the other should be protected by a bandage of this rubber adhesive plaster which should form the outer layer. A watchglass, or mica plate, may be used to enable the patient to see. If the symptoms are mild cold may be applied to the affected eye in the form of pads of cotton saturated with boric acid cooled on a cake of ice. At intervals these should be stopped to prevent paralysis of the blood vessels.

Necessity for Cleanliness.—The eye should be kept thoroughly cleansed of its discharges. To Kalt, of Paris, we owe the merit of having introduced lavages, i. e., the irrigations of the conjunctival sac with large quantities of a 1-5000 solution of permanganate of potassium; instead of this a solution of 1-2000 formalin, or of bichloride of mercury 1:5-10,000 can be used. The solution used should be first warmed and the pressure should not be greater than that obtained from a height between one and one and a half feet, just sufficient to dislodge and wash away all particles of discharge lodged in the folds of the conjunctiva. These irrigations should be employed every two hours day and night. Infected dressings should be thrown into a vessel filled with 5 per cent. carbolic acid solution, or 1-1000 sublimate solution, or plain water. The contagious discharge loses its power of infecting if diluted with water in the proportion of 1-100. If cold applications are not well borne they should be discontinued and hot applications made; these are especially useful where there is hard infiltration of the lids with tension. These hot applications should be employed for one-half to one hour at a time, with intervals of one and a half to two hours. If the swelling and chemosis become excessive, the outer canthus may be incised. This always affords great relief by lessening the tension and by bleeding. While the lids are hard, especially when there are grey patches of exudation on the inside of the lids, cauterization with nitrate of silver is not advisable and may even be harmful, as it gives rise to a recurrence of the infiltration. It should not be used before the stage of pyorrhea, in which the lids are soft, the conjunctiva velvety and the discharge creamy and very abundant. Then the lids should be everted and carefully brushed with a 2-per-cent. nitrate of silver solution, once or twice a day, but not before the eschar of the previous application has been thrown off. Nitrate of silver is the sovereign remedy in gonorrheic ophthalmia. Protargol and allied organic silver compounds raised great hopes when introduced but they do not coagulate and the coagulating power is the chief factor of its remedial efficiency. Nitrate of silver not only has a strong bactericidal power but it necrotizes the superficial layers of the epithelium in which the germs are lodged. The copious irrigations should be continued day and night. The stage of pyorrhea lasts from one to two weeks. Within four to six weeks the eye returns slowly to its normal condition, although for a long time there remains some chronic inflammation and thickening of the conjunctiva over the lids and folds. A dreaded complication of gonorrheal conjunctivitis is ulceration and necrosis of the cornea with its consequences. When it occurs in the first stage it is of sinister import. During the stage of pyorrhea it is not quite so dangerous. Ulcers of the cornea with their sequelæ, as perforation and prolapse of the iris, should be treated according to general principles. Bandaging of the eye should never be permitted because of blocking up discharges. Prolapse of the iris should not be cut off as long as there is danger of infection for it has been known to be followed by panophthalmitis.

Gonorrheic Ophthalmia of the New-born.—Irrigations of the vagina with antiseptic solutions before confinement promised a great deal but have not much effect in preventing infection of the new-born. Credé's method, introduced in 1879 in his obstetric clinic, reduced his cases from 10.8 per cent. to 0.1-2 per cent. and was a great triumph in preventive medicine. If generally used ophthalmia of the new-born would be entirely abolished. Ophthalmia of the new-born shows itself, with similar symptoms as in the adult, usually on the third day, sometimes up to the fifth day; graver cases may appear on the first day. It is generally conceded that if the child comes under treatment with the cornea intact the eyes can be saved with certainty. An exception are cases with malnutrition and failing health. At once nitrate of silver in 2-per-cent. solution should be applied. The lids should be well everted so that the fold of the fornix becomes movable when they should be brushed with the solution until they become white. This should be done daily. Every half hour the lids should be separated and the discharge washed away with a cotton swab saturated with boric acid. If it is deemed necessary to apply cold, ice should not be used locally, but simply cold cotton pads should be applied.

Kalt irrigates the eyes two or three times a day with a 1-5000 permanganate solution, using about one quart each time, with very good results. Treatment with nitrate of silver and simple rinsing away of the discharge insures good results and this is better in the hands of the lay people than the irrigator.

Diphtheritic Conjunctivitis.—This affection is rare in this country but more common in Northern Germany. It is divided into two forms, the lighter croupous and the severe diphtheritic, the difference being clinical rather than etiological. Both may be caused by the Klebs-Loeffler bacillus but also by the streptococcus, gonococcus and other germs. Children between the ages of two and eight years are usually affected, and frequently they will be found to be suffering from diphtheritic throat and nose affections. This is one of the severest forms of ophthalmia and the swelling and hardness of the lids reaches the highest degree and, in severe cases, the cornea is mostly lost without hope. As a rule but one eye is first affected. If the case is severe the antitoxin should be used without waiting for cultures. Strict isolation of the patient should be enforced. Hot applications should be made to promote circulation and resolution of the exudate. Remove the discharge as often as it accumulates. After five days the infiltration lessens, the lids become soft, and then the nitrate of silver should be employed very cautiously, using a 1-per-cent. solution; this should be stopped if infiltration or membranes appear. Vaseline may be introduced into the conjunctival sac to prevent symblepharon in cases where the exudate has been thrown off leaving raw surfaces. Corneal ulcers should be treated on general principles. Prolapse of the iris should not be cut off as long as the danger of infecting the wound exists, as these wounds become infiltrated.

Prophylaxis and Treatment of Trachoma.—Prophylaxis can do a great deal toward preventing the spread of this trouble and every physician should enlighten his patients as to its contagious nature, and should explain to them its gravity and instruct them how to prevent infection. No other person should share the bed, towel or washing utensils with an individual suffering from trachoma. Surgical measures are to be preferred but nitrate of silver and sulphate of copper should be trusted, the former for cases with moderate inflammation and with discharge, the latter for the cases of chronic infiltration. Cases of acute trachoma should be treated with cold applications and irrigations; cauterization with nitrate of silver, as a rule, is not advisable, but scarification brings relief. For the treatment of trachoma surgical methods prevail at present. Expression with roller or other forceps is now in almost universal use, and is well fitted for fresh cases with plenty of follicles and a conjunctiva which is not atrophic. Expression should be done under general anesthesia. After it is finished a ½-per-cent. solution of nitrate of silver which is applied to every part of the conjunctiva. The subsequent edematous swelling may be prevented by applying a bandage, keeping it on over night. Since the expression does not remove the small follicles imbedded in the conjunctiva treatment should be continued for some time after the operation until the conjunctiva is entirely smooth. A 2-per-cent. solution of sulphate of copper in glycerin pure or diluted with water and used for four or six weeks will perfect the entire removal of follicles and papules. In cases where atrophy and cicatrization of the conjunctiva exist with simultaneous presence of follicles one may express the follicles between the nails of the two thumbs, which is less injurious than the forceps and a much more efficient procedure than waiting for the follicles to be absorbed.

Treatment of Pannus.—The presence of pannus is no contra-indication to expression, nor does the pannus require special treatment. Where pannus exists and no follicles in the conjunctiva are present, which never happens in a fresh case but frequently in old cases after many relapses, cutting of the blood vessels at the edge of the cornea with a sharp knife will cause the pannus quickly to disappear. In old cases of acute inflammation, whether the conjunctiva is hypertrophic or atrophic, liberal scarification of the conjunctiva will be found useful. If for all cases of trachoma a universal remedy ought to be selected, which is certainly impossible, the nearest approach to it would be a solution of copper sulphate in glycerin used as eye-drops two or three times a day.

New York Laws as to Contagious Ophthalmia.—Dr. Frank Van Fleet reviewed the laws of the State of New York relating to contagious ophthalmia, the results of their enactment and the desirability of further legislation. Tacitus said that laws are multiplied when the state is bad. With regard to contagious ophthalmia one might think according to this principle that the State of New York was in a condition of marvellously good health. There are but two laws. The first was passed in 1886 as the result of the investigation by Drs. Roosa, Grüning, Noyes, Derby and others. The second was for the prevention of ophthalmia neonatorum and required midwives to report any redness of the eyes of children under their care within six hours after its occurrence. This latter law has been especially effective and has proved very beneficial in preventing blindness. At the present time it is well for physicians to know that the Society for the Prevention of Cruelty to Children will prosecute any violation of this law that is brought to their notice. At the present time contagious ophthalmia is said to exist only to the extent of forty cases for every 100,000 of population. The percentage was formerly higher than this. The presence of the disease is mainly due to the foreign elements in the population. The contagiousness of the disease makes it extremely desirable that there should be more asylums in which it could be treated properly. The quarantine authorities of New York City have begun to refuse admission to cases of trachoma and it seems very desirable that this mode of limiting the disease should be continued. With regard to New York City there does not seem to be any further need of legislation in the matter. Throughout the state it would perhaps be well that the various health departments should be given power to institute prophylactic measures against the spread of the disease, especially in the schools. There is no doubt that if proper representations were made the necessary outlay for inspection of the schools could be obtained. In Dr. Van Fleet's opinion there are many purulent eye conditions which develop as the result of promiscuous bathing in city bath houses. These cases are not serious as a rule, however, and require only slight attention for their cure. The Board of Health can certainly make regulations against the dangers that may be encountered in these bath houses and there seems no need of additional laws. It has been suggested that the use of Credé's prophylactic against the development of ophthalmia neonatorum should be made compulsory by law. There are many specialists in eye diseases, however, who are not agreed as to the usefulness and effectiveness of Credé's method. Consequently it would be inadvisable and surely futile to suggest to the legislature the enactment of such a law.

Need of a United Profession.—In New Jersey there is complaint of the ineffectiveness of the laws already in existence. It has been suggested that the

Boards of Health should put contagious ophthalmia on the list of contagious diseases. What is needed, however, more than new regulations, is the combination of medical interests in a united profession that will secure the enforcement of regulations at present existing. Here in New York medical disunion has lessened the force the profession would have in many ways and has prevented the carrying out of laws that exist to such an extent as apparently to demonstrate that further legal measures are needed, though they are not.

Contagious Ophthalmia in the Public Schools.—In discussing the papers Dr. Grüning said that the public schools are certainly in a very unfavorable condition as regards contagious ophthalmia. A beginning has been made, however, and already some children are excluded because of the presence of contagious eye disease. It must not be forgotten that the patient may be cured and yet reacquire the disease. The Board of Health should have the power not only to inspect the schools, but to go to the houses whence children come and so secure the stamping out of the disease. Trachoma is not endemic in this country, but is brought here from Russia, Italy and Ireland. Now that attention has been called to it there is no doubt that the Board of Health will proceed to enforce the measures necessary for its limitation. Dr. Pooley said that Dr. Derby's report shows at once the value of inspection and its necessity. Unfortunately discredit is sometimes brought upon school physicians by the occurrence of mistakes of diagnosis. Dr. Pooley has recently had some cases referred to him, in which children were dismissed from school for hyperemia of the conjunctiva due to nothing more serious than refractive errors. School inspectors must be competent if they are to exercise the function of dismissing pupils for presumedly contagious disease. Dr. Pooley is convinced that the bath houses increase the number of purulent eye diseases every summer. Shortly after the opening of the free baths, the number of purulent eye diseases under treatment at various dispensaries begins to increase. The inspection of public baths then is extremely necessary and the Board of Health should give it its attention without delay. Dr. Pooley has seen some very severe cases of purulent conjunctivitis that were to his mind undoubtedly acquired in the public bath. In some cases even gonorrheal ophthalmia has been thus acquired. Dr. Pooley considers it cruel to instil nitrate of silver into the new-born baby's eyes. The infants are not infected during parturition when the eyes are firmly closed, but after birth. The child's first instinctive movement is to dig its fists into its eyes. First of all then the hands and bodies of new-born children must be thoroughly washed. This will prove a much better form of prophylaxis than the overpraised Credé method.

Dangers of Public Baths.—Dr. Lambert said that three years ago he called the attention of the Board of Health to the dangers there were of the communication of eye diseases in the public baths. The notion was ridiculed, however, and it was said that the baths were rigidly inspected and that no such contagion could possibly take place. There is no doubt now that many contagious eye diseases have their source in the baths. It is well that the matter has been so publicly called to the attention of the Board of Health, for now it will be thoroughly sifted.

Dr. Jackson said that contagious eye diseases are usually obstinate to treatment and require the segregation of patients for a long time. It seems inadvisable to deprive these children of the privilege of attending school for so long a time. He suggests, therefore, the establishing of separate classes for such children in which they can be taught without danger to others and so avoid possible contagion as well as loss of valuable time in their education.

Dr. Derby in closing the discussion said that as soon as the census of the school inspectors is complete, the extent of the danger will be evident and then it will be comparatively easy to decide what to do. As in the matter of the charitable institutions knowledge of the facts in the case will surely lead to the necessary reform.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held June 9, 1902.

The President, Andrew H. Smith, M.D., in the Chair.

Therapeutic Value of the Internal Use of Carbolic Acid.—Dr. S. Henry Dessau read a short paper on this subject, which was presented in behalf of the Committee on Collective Investigation as a basis for further clinical study. It was perfectly natural, he said, that a feeling of incredulity and hesitation should exist in regard to the virtues of a remedy whose reputation is so closely associated with a history of criminal poisoning, to say nothing of early prejudices founded upon false interpretations of its physiological manifestations. His experience with the internal use of carbolic acid began in 1894. His reason for employing it was that it is an internal antiseptic. As preeminently the type of germicides, being evolved by Nature in the physiological processes of animal digestion, he believed that it should be accepted as a specific remedy against the disease action of a certain class or variety of germs. Clinical results seem from his own observations to bear out this idea in a most satisfactory and gratifying manner. His experience with its therapeutic effects has been chiefly in the treatment of catarrhal complaints involving the respiratory tract, and particularly in influenza among infants and children. His results from the use of carbolic acid have been better and quicker than from any other treatment. They have been especially satisfactory in those cases in which it has been almost impossible to keep the little patients in bed. The method of administration preferred is in the form of solutions of the strength of 1, 2, 3 and 5 per cent. of chemically pure carbolic acid. An infant under one year old receives a teaspoonful of the 1-per-cent. solution, while a child of five years may get the same dose of a 5-per-cent. solution, every two hours. Adults may take a tablespoonful of the 5-per-cent. solution. A small amount of glycerin aids in preparing a more complete solution, and cinnamon water is useful as an excipient to assist in disguising the pungency of the acid.

The author believes that carbolic acid is best indicated in those affections in which the disease-germ is of a weak nature and manifests its pathological action principally upon the mucous membranes. He also believes that its field of usefulness will eventually prove broader than it is at present, and that such diseases as erysipelas, scarlatina, and even typhoid fever and pneumonia will prove amenable to its therapeutic effects. He thought there was no valid reason why carbolic acid should not show as good results in pneumonia as creosote, and the advantage of the acid over the latter pharmaceutically as an internal remedy was that for children it makes a better solution and has a less disagreeable odor. It has been found by him and others perfectly harmless and free from secondary effects when administered in the doses mentioned. The smoky color of the urine is now known to depend upon the elimination of the acid in a changed form, designated as the glycuronate of hydroquinone and pyrocatechin. The presence of albumin in the urine may or may not be due to an irritation of the kidneys by this substance, but it is a fact that no interference with the renal functions has ever been observed by him from the remedy in an experience now covering some four thousand cases. The only idiosyncracy observed against its use has been that of vomiting.

Time-Saving and Labor-Saving Devices in the Office Work of Surgeon and Gynecologist.—A paper with this title was read by Dr. Robert L. Dickinson. It included the planning of offices and waiting-rooms, electrical outfits, sterilizers, card-histories, and other details. Organization of work by unloading on partners or assistants, he said, found less play in the medical profession than in other livelihoods calling for equal brain power. The physician was able to delegate little, and there was, therefore, all the more need of system and intelligent planning in whatever matters these might expedite and simplify. Expedition in office work may be effected in several ways, such as (1) by well-planned quarters; (2) by completeness of outfit; (3) by appointments and selection among waiting patients; (4) by systematic history-taking; and (5) by proper assistance.

Planning of Offices.—Then general principles bearing on the planning of offices were stated as follows: (1) The offices should be as independent as possible of residential parts of the house. (2) The waiting-room should be attractive, cheerful, light, with sufficient cubic air-space and ventilation, and supplied with comfortable seats, books, pictures, etc. (3) The different offices should be accessible without passage through each other (and without necessarily passing through the waiting-room), so that entrance or exit is possible for each independently. (4) The desk office should be separate from the examining-room. (5) For the busy man two smaller waiting-rooms are better than one large one; two smaller separate examining-rooms better than one large one. (6) The offices should be located in the natural order of progress of the patient, namely: hall, waiting-room, desk office, dressing-room with toilet, examining-room, recovering-room or dressing-room, hall. (7) Ten feet square is a minimum, but sufficient, floor-space to accommodate a single office (as distinguished from waiting-room or dressing-room). (8) The toilet, as well as the telephone closet, should be accessible from both waiting-room and offices. (9) Walls and doors should be measurably sound-proof. (10) Doors should be so hung that when partly open they screen the occupants of the room, and not primarily for appearance or convenience in entering. (11) Provision should be made for the elimination of odors of drugs, gas, steam, etc. (12) Objects calculated to trouble or alarm patients should be screened or under cover.

In these day of electricity interior rooms have become available by the use of a method of illumination that does not vitiate the air, aided by light wall-covering, by the headlight, which is often better than window light, and by the use of rotary fan. Three plans were considered. In the first there were simply (1) a waiting-room (parlor or wide hall) and (2) office (desk office, examining-room, and sterilizing-room in one). An intermediate plan called for (1) hall, (2) waiting-room, (3) office, (4) inner office (including sterilizing- and instrument-room and laboratory, (5) toilet. A complete plan included (1) main entrance hallway, (2) main waiting-room, (3) small special waiting-room, (4) desk office, (5) inner office, (6) inner office, (7) recovering-room or dressing-room, (8) sterilizing- and supply-room and laboratory, (9) toilet, (10) telephone closet—all with independent access to (11) private hallway and (12) separate entrance.

Electric Lights.—Dr. Dickinson gave minute details for the equipment of the various rooms. He then went on to say that for the gynecologist, as well as for the man who deals with the larynx or the ear-drum, artificial light is better than daylight. With the electric headlight the band should rest firmly without disarranging the hair, and have a light cable of sufficient length to permit the wearer to stand up or move to his washstand. Some lights have a focusing device, which is excellent for vaginal and rectal work. For examination of the female bladder or through a tiny opening in the hymen the head-mirror is mostly used. He has abandoned his complicated and expensive cystoscope, except in special cases, for the simple Kelly tube. The handling of the mirror is facilitated by instituting a band of flexible metal for the ribbon. To place a light for the head-mirror over against the operator the best device is a light arm (such as is used by dentists) swinging from the wall, so jointed that it stays in any desired position. The new electric outfits are exceedingly convenient. From one board connected with the street current galvanic and faradic currents are taken, and the headlight and cautery, as well as the electric drill, can be run.

Assistants, Card-Histories, etc.—To save time there should be one or more duplicate sets of those instruments which a surgeon or specialist is needing constantly to use and to sterilize. The sterilizer, with its steam, is best kept out of the offices. Wherever it is, it should have its hood and a pipe out through the wall or window, to carry off gas and steam and heat. By placing special work on special days many a young man can well afford assistance. In some cases a discreet housemaid acts as office nurse. At the next step the accountant becomes accountant and stenographer, secretary and nurse in one. For office work a conscientious woman who understands shorthand can be easily taught surgical cleanliness and the keeping of accounts, because the round of duties is a narrow one, the possibilities of error few, and the supervision constant. The card index or card catalogue system is the only portable, elastic, simple, orderly and self-indexing way of keeping records. It consists of using one or more cards for each case, the cards being ranged under an alphabetical index and stacked on edge in a drawer or box, and folded down the middle for carrying in the pocket. The system also includes ledger cards. Standard sizes were strongly urged for those who desire to adopt a card system for histories, accounts or addresses. For such all the necessary fittings are provided and ready, whereby economy with speed and certainty in filling orders is secured. He had had nine years' comfort with this method in office and hospital. All businesses are taking the card system up.

Serious Vomiting of Pregnancy.—Dr. R. E. Van Gieson read a paper with this title. A careful analysis of the mass of apparently contradictory opinions reduces the many alleged causes of the vomiting into three principal groups: (1) The reflexes produced by impulses from the organs of generation conveyed to the vomiting center. (2) A combination of causes, affecting the vomiting center directly and indirectly and reflexly. Thus, one may have a direct cause by the circulation of toxins and at the same time peripheral sources of irritation may also act. (3) The psychopathic factors which include hysteria. The writer reviewed Barnes' theory which refers the trouble to stretching of the muscular fibers of the uterus; and Graily Hewitt's, that it is due to uterine flexions. Hewitt contended that the occasional success of Copeman's method of dilatation of the cervix was not due to the dilatation *per se*, but to the fact that the procedure corrects in a large degree any existing flexions. Bennett held that erosions of the cervix were the chief cause, and Keiffer that the suppression of menstruation might cause an accumulation in the blood of harmful waste products (toxins), while Kattenbach considered hysteria a nearly universal cause.

Types of the Disorder.—By means of reports of three cases occurring in his own practice, Dr. Van Gieson gave a clinical picture of three types which, he said, most frequently demand attention, namely, (1) the exaggerated, (2) the severe, (3) the fatal. In the fatal case the induction of abortion had no effect in arresting or diminishing the vomiting, and the patient died from starvation, anemia and exhaustion. So far as drugs were concerned, he had had more success with chloral and cocaine than with any others. In treatment, he said, due weight must be given to the various causes to which the condition has been attributed, remembering that one may have a combination of them all, or but a single one. Displacements, flexions, obliquity of the uterus, inflammatory thickening, etc., must be looked for and rectified or removed. The control of vomiting must be insisted upon as possible by the will power of the patient, and suggestion, hypnotic or simple, may be an important element in hysterical cases. In extreme cases saline injections serve the threefold purpose of increasing vascular tension, eliminating toxins, and supplying the absent chlorides. Subcutaneous injection is decidedly to be preferred to the intravenous.

Induction of Abortion.—The nearly universal opinion is that abortion should be induced after other remedies fail. While personally he had met with disappointment in this matter, he was not prepared to say that he would not again induce delivery, especially if the urine showed any considerable percentage of albumin or casts; but he certainly would not temporize with remedies until the last stage of exhaustion was reached. In Cohnstien's 200 cases only 40 per cent. ceased vomiting after abortion. Bacon took the very positive position that the induction of abortion is *never* indicated, holding that at a stage when it is safe and efficient it is not necessary, while in extreme cases it adds greatly to the danger, rarely stops the vomiting, and can be replaced by the artificial serum. Personally, Dr. Van Gieson said he had as yet had no experience with the subcutaneous injection of normal salt solution, but it seemed to him to meet certain indications for treatment in which our methods have hitherto been inadequate.

Propriety of Inducing Abortion.—Dr. Edward A. Ayers said that, as this affection may be dependent upon a variety of causes, it is our duty to make a careful investigation in order to find out whether there are not abnormal local or general conditions to which the trouble is attributable. In very severe cases, in which all other remedies had failed, he thought it advisable not only that abortion should be induced, but also that it should not be postponed until too late. He could not, therefore, agree with the opinion of Dr. Bacon. As a rule, abortion put an end to the trouble. In these cases it was requisite that the operation should be performed as rapidly as possible, and it was his practice to administer an anesthetic, forcibly dilate the cervix, and then curette out the contents of the uterus. He thought highly of the use of saline injections.

Dr. Robert L. Dickinson said that in hospital practice obstetricians were accustomed to meet with a considerable number of neglected cases in which the life or health of the patient was in danger. In the hands of intelligent practitioners, however, cases of this kind he thought were inexcusable. Notwithstanding the opinions of Bacon, there was no question in his mind that the most important measure of relief is abortion, and he agreed with Dr. Ayers that when other forms of treatment have failed nothing less than this will answer.

Dr. J. Milton Mabbott said that he should hesitate to talk of abortion to his patients, as he believed that this had a very bad effect. In a large experience both at the Nursery and Child's Hospital and the New York Infant Asylum he had never met with a fatal case. He was not so much afraid of the consequences of serious vomiting as a great many physicians seemed to be, and he could not therefore agree with those who advocated an early resort to abortion. He had to confess that while he was quite willing to induce abortion on account of Bright's disease, he was much less inclined to do so for this cause.

Abortion Almost a Certain Remedy.—Dr. Samuel M. Brickner said that, while the paper was a most admirable one, he could not agree with all the statements in it. He believed that the induction of abortion almost invariably puts a stop to the vomiting. There was one point of interest in this connection. Inasmuch as abortion was successful in arresting the vomiting, this seemed to do away with the theory that the condition is dependent on a toxemia. Still, at the present time we could only confess our ignorance in regard to its etiology. He mentioned one case of serious vomiting in which the patient was troubled with gall-stones, and said that after the cholelithiasis had been corrected the vomiting ceased. The fact seemed to be that there was as a rule no one single factor in the causation. There was one method of treatment not thus far alluded to which had proved of very considerable value, and that was Hegar's plan of continuous saline irrigation of the rectum. He himself knew of an instance in which this procedure saved the patient from the induction of abortion. Drugs, he thought, were of no great value.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 20, 1902.

The President, James R. Crooks, M.D., in the Chair.

THE scientific business of the evening consisted of a symposium on the watering-places, health-resorts and the mineral waters of the United States.

The first paper of the evening was read by Dr. Guy Hinsdale of Philadelphia on the health resorts of Maine.

Maine Mountain and Coast.—The State of Maine possesses two very distinct kinds of territory as regards therapeutic effect upon invalids—the mountains and lakes of the interior and the long Atlantic Coast line. Of the mountains, Mount Katahdin is the highest, is covered by fir trees, and has a fine, dry, sandy soil. It is the coast of Maine, however, that is most important. The indentation of the coast line makes the sea margin much more extensive than it would ordinarily be. It is calculated that if the sea coast were stretched out in a straight line it would cover a distance of three thousand miles. The climate is cool and stimulating and has a daily range of temperature of from 15 to 17°. Along the coast the breezes from the sea blow in a southerly and southwesterly direction and are extremely pleasant. The sea breeze blows landward from about ten in the morning until five in the afternoon. This causes a notable depression of temperature for some miles inland. In the interior the effect of this breeze is not noted.

Diminution of Tuberculosis Death-Rate.—During the last few years there has been a very noteworthy diminution in the number of deaths from tuberculosis along the sea coast of Maine. Some five years ago the yearly deaths from this disease numbered 1352. Last year they amounted to less than 900. This means a reduction in the mortality rate from 20 per 10,000 of the population to 14 per 10,000 of the population. Much of this improvement in the matter of tuberculosis has been brought about by a judicious spread of sanitary knowledge with regard to the prevention and early treatment of the disease. A circular stating the dangers very clearly and pointing out the precautions necessary to avoid contagion has been published by the Board of Health of the State and has been widely disseminated. Tuberculosis has dropped from the second greatest cause of death to be only the fourth in importance in this respect. Last year's statistics show in the order of fatality brain disease, pneumonia, heart disease, and tuberculosis.

Localization of Improvement.—Dr. Hinsdale said that along the coast the diminution in the number of deaths from tuberculosis has not been so marked as in the interior of the State. The only coast county in which a reduction in the number of deaths from tuberculosis is noted is York, the most westerly county, and the exposed situation acts especially unfavorably with regard to tuberculosis statistics in the more eastern counties. Pneumonia has the same death-rate to the number of population in the interior of the State as has the sea coast. This uniformity is maintained to one-tenth of one per cent. It is not, then, the unfavorable conditions for respiratory affections on the coast that cause the increased mortality from tuberculosis, although the situation is much more damp, and, in winter the moist cold is much more uncomfortable; pneumonia is neither more frequent nor more fatal.

Comparative Death-Rate of Other Diseases.—The mortality from infantile diarrhea is greater in proportion to the number of population in the interior of the State than on the coast, as might be expected. The heat itself is an important factor in the reduction of the vitality of young children, making them more liable to summer diarrhea and more prone to succumb to some fatal complication. The interior of the State receives much less benefit from the cooling sea breezes, and in the summer time there are not a few days of comparatively hot weather. The sanitary conditions along the sea coast have improved rather than deteriorated with the advent of the summer visitors that increase in number every year. There is no doubt that Maine is in the near future to be even more sought than heretofore by those looking for a stimulating, tonic and salubrious climate in the summer.

Maine Visitors.—It is calculated that more than 10,000 sportsmen visit Maine every year. This indicates one of the great attractions of Maine, the opportunities for thoroughly healthy outdoor sport that it presents to men. Fashion's fads have dictated visits to the sea coast, and over 2,000,000 visitors are said to spend some time during the summer within the State. This provides an income of over ten millions of dollars a year to the State of Maine. Away from the sea coast and even along the coast itself, in less known but very healthy locations, accommodations are not expensive. Sportsmen may obtain a place in camp in the interior for one dollar a day.

Therapeutic Climatology.—The eastern part of the State is too chilly and damp for delicate and consumptive patients and the daily variations of temperature are too brusque and trying. The Maine coast is particularly suitable for functional nervous diseases. For the overworked neurasthenic suffering from insomnia and lack of rest, no better location can be found in this country than certain places in Maine along the coast, but away from the fashionable quarters. This has come to be recognized very generally by nervous specialists throughout the East, and many such patients derive benefit from the prescription to spend some months of the summer on the coast of Maine. The climate is especially stimulating and the daily variations of temperature are very conducive to the tired feeling that gives restful sleep, soon proving better than any remedial measures that can be advised.

Oceanotherapy.—Dr. H. Holbrook Curtis said that while much has been written about the various health resorts, not enough is said about the value of sea-voyages and dwelling-places on islands and other situations along the coast that are practically in an ocean climate. The Atlantic ocean possesses as varied a climate as does the land which it touches. The Gulf Stream makes it warm and equable in many parts; the Labrador current makes it cold and blustery. European travelers who know the difference between the weather encountered in the northern and southern routes to Europe are well aware of this difference of climate. There was a time when the value of ocean air was so highly considered that persons were sent on long voyages on sailing vessels. There are very few patients in modern life, however, who stand this prescription well. There is a number of locations along the Atlantic Coast that give practically all the benefit of life at sea without its monotony and its discomforts.

Nantucket as an Ocean Resort.—Of various places along the coast Nantucket may be mentioned as the one that best fulfils the conditions for oceanotherapy. It has the least daily variation. It has very low rainfall and rejoices in a low humidity. Block Island is almost better than Nantucket in these respects. The island enjoys a climate that is quite strikingly different from that of the neighboring continental resorts, as here practically all the advantages of life at sea can be enjoyed.

Sea-Voyages.—The advantages of life at sea are the entire rest and the absolute necessity of almost living in the open air that is forced upon patients. There is besides the absence of dust, the equability of temperature, the inhalation of the saline particles that find their way into the air, together with the electrical stimulation of the ozone so plentiful at sea. Besides the moist atmosphere the ocean has that distinctly sedative effect that occurs in a moist climate with a high barometer. An added benefit is the tonic effect of a complete change from ordinary life on land. Island life possesses the sedative tonic influences of the ocean without the ennui of a long sailing voyage. These sailing voyages for therapeutic purposes should now be reserved only for dipsomaniacs and errant sons.

Children and the Sea-Coast.—Children particularly are prone to be more benefited by a prolonged stay somewhere along the sea coast in the summer than by any other set of conditions. They are tempted to play in the sand near the water for most of the day; much of their clothing is removed, their skin is exposed to the sea air and free sunlight. The air contains the iodine and bromine that is so thoroughly tonic for growing children. Delicate children in particular are apt to thrive under these circumstances. While mountain air may be praised for its salubrity, the conditions near the coast are much more prone to tempt children back to that closeness to Nature which is sure to be of decided benefit to them.

Selection of Location.—It is impossible to tell where any given individual will be most benefited; idiosyncrasy plays an important rôle in the determination of the conditions that are best suited for the individual. There are certainly no hard and fast rules by which the physician, even though he knows his patient very well, may be able to decide that he will be sure to be benefited in a certain location. Patients themselves must be told to try certain places and report results. Often previous incidents in life and the feelings of the patient under certain climatic conditions will prove a guide as to what in all probability will be the best location for the improvement of health that is anticipated from the stay at a health resort. The more physicians learn to realize that they must individualize in this matter for each patient, the more will oceanotherapy be withdrawn from the hopeless routine of present conditions and take on some scientific exactness.

Climatotherapy for Asthma.—Dr. Beverley Robinson said that undoubtedly such a thing as pure nervous asthma does occur, that is, asthmatic symptoms without any basis of inflammatory change in the mucous membrane of the bronchi to account for the symptoms. These cases are rare, however, and usually acute or chronic bronchitis exists as the basis for the asthmatic condition. When the secretions are too copious injections of atropine form an excellent treatment and at times when disturbances of the peripheral circulation in the lungs because of spasmodic contractures of small blood-vessels occur, nitrite of amyl may be used. The most useful single drug is undoubtedly potassium iodide; it is rendered even still more efficient by combining it with Hoffman's anodyne, as is the custom in most of the hospitals in the city. The Roosevelt emphysema mixture is wonderfully efficient and hundreds of patients every year obtain the most efficient relief from its use during the trying periods of changeable weather.

Prophylaxis of Asthma.—Asthmatic attacks when severe are very exhausting and the most important part of their treatment is as far as possible to prevent them. In certain patients they occur almost regularly at certain seasons of the year, and for these a change of climate has been found a most useful method of treatment. It is a false assumption that asthmatic patients usually do better in the city than in the country; it has often been said that the irritant effects of the dust and gases of the city act rather favorably on the irritated mucous membrane. As a matter of fact there is no special spot where asthma patients are sure to do well. The same is true for the corresponding conditions of the hay-fever group; for each individual patient careful search must be made for the climatic conditions that will best agree with the individual case. When hay-fever recurs regularly and is associated with catarrhal conditions, Dr. Robinson sends his patients, if they are able to bear the expense, to Europe during the season in which their affection comes back; the change of climate and of manner of life, the novelty of the various scenes, the daily renewed interest, all form a tonic for the nervous system that gives patients the best possible relief from their symptoms.

Spa Treatment for Asthmatic Conditions.—Various watering-places are especially favorable for asthmatic conditions, but they must be by no means recommended on general principles, but must be selected with special reference to the condition of the individual patient. When patients suffer from engorged liver, Homburg is an excellent place and the waters are of such a character that they are not easily abused. The best sulphur springs for these cases are at Aix-les-Bains. It is undoubtedly true that the air around localities where sulphur springs exist is of great service in the respiratory catarrh that often exists in such cases. Here in this country Sharon Springs or Richfield Springs are useful for this purpose. It must not be supposed, however, that patients should merely be directed to go to a certain watering-place, take the waters in any quantity they wish, live according to their caprices and then expect to get better. The physician and his patient must work together and the patient must follow absolutely the directions given him. These directions should go into details.

Constitutional Treatment.—It is very important when asthmatic conditions exist, that all organs should, as far as possible, be put in order. The nose and the stomach are the most important organs from which reflex nervous impulses may originate to cause, or at least to render more severe, the symptoms of asthmatic attacks. In asthmatic cases there is nearly always some dilatation of the right heart present. As a rule, then, these cases should not be sent to very elevated localities. Damp climates are not suitable for them, and therefore, as a rule, they should not be directed to take up their residences in a lake region, or along a foggy seashore and should be advised against living in a swampy district. There are many individual idiosyncrasies in these matters, however, and at times patients will be found to suffer much less in what might seem to be an unfavorable region.

Treatment of Neurotic Conditions.—Even though asthma has for its basis some affection of the respiratory mucous membrane, its symptoms are often rendered much worse by neurotic manifestations. Hence, everything that can act as an excitant to an overwrought nervous system should be advised against. Tea or coffee, tobacco and spirits must not be permitted. The climatic influences that favor a better condition of the general nervous health must be especially insisted on. Worry and emotional strains that make the nervous manifestations worse than they were before are sure to add to the severity of the asthmatic symptoms. Patients must be advised to take sufficient hours of sleep and abundant exercise in the open air, yet this must not be of a character that will overtire them.

Asthma and Cutaneous Diseases.—It seems clear that there are often distinct relations between asthmatic manifestations and certain cutaneous eruptions. When the cutaneous symptoms are at their worst the asthma may be somewhat relieved. When, however, the cutaneous condition is improved by medication a relapse into the former asthmatic condition may occur. The climatic conditions that are good for the asthma may also prove favorable for the cutaneous eruption. These facts are to be remembered but do not make contra-indications to climatotherapy.

Surgery and Asthma.—Throat and nose specialists have often insisted that operations upon the throat and nose will afford relief for many cases of severe asthma. In Dr. Robinson's experience such operations have often seemed to do good, but not permanently. In general it may be said that neither surgery nor drugs are effective in giving lasting relief to asthmatic symptoms. The rational treatment of these conditions is by natural hygienic methods. Every physician of large experience in these matters is coming to realize the truth of this. There are no specifics and the careful arrangement of the life of the patient, under favorable conditions of climate and living conditions and absence of worry, will secure relief from asthmatic symptoms that have lasted for many years. The problem is not a simple one and relief will not come until careful study of all the conditions has enabled the physician in question to realize all the changes that may be necessary.

Climatotherapy for Neurasthenia.—Dr. Edward D. Fisher of New York said that neurasthenia is allied to hysteria and also to hypochondria. These functional conditions of the nervous system may all be influenced by suggestion. Hence, the change of life that is brought about by the removal to a new climate is often of itself an extremely effective method of treating neurasthenia. Neurasthenia represents a lowering of functional ability usually due to overstrain. Under pleasant conditions in a favorable climate, with rest and abundance of sleep, the ideal therapeutic surroundings are obtained. The exhaustion in these cases is real, but not absolute; as the result of its presence, however, there is a loss of nervous control over all organs. The sight, the heart, the stomach, the memory, all are lowered in functional capacity. It can well be understood, then, that a vicious circle of pathological conditions is established.

High Altitudes and Neurotic Conditions.—Dr. Fisher said that no general rules can be laid down with regard to the localities that may be most suitable for special forms of nervous trouble. Individuals must be carefully studied in order to determine what localities may prove most suitable for them. Not only must the patients' physical condition be studied, but also their habits and tastes must be consulted, so that they may be contented in their surroundings. In very high altitudes many nervous symptoms are prone to be increased. Especially is this true if cardiac irregularities exist and if they form a prominent feature of the nervous trouble. It must not be forgotten that it is a rather common experience in very high altitudes in the West for even normal women to live continuously at a high elevation when they have been brought up at lower elevations. Many Eastern women who go to the West to live must return to the East at least once in two years.

Mental Satisfaction and Health.—With regard to the treatment of neurasthenics by change of climate it must never be forgotten that in the midst of ennui and tedium all efforts to regain health are vain. Certain health resorts that have systematic regulations for patients yield much better results for nervous patients than others. When the duties of the day are marked out absolutely there is much less time for introspection and the suggestive influence of symptomatic conditions that have only a slight existence in reality is diminished. A long sea-voyage should be recommended only when it is well known that the patient is a good sailor and enjoys the sea very much. Men who will not forget their old cares worry more and more and their surroundings at sea become irksome.

The Isle of Wight.—For all the benefit of oceanotherapy and yet the human interest of the shore and a change of climate and locality that proves delightfully tonic, the Isle of Wight makes, according to Dr. Fisher's experience, an excellent prescription. For patients who are not delicate and who need a more bracing climate the northern part of Scotland or even the Shetland or Orkney Islands may be recommended. It is always better to avoid sending nervous patients to fashionable resorts where there are many people, and especially where there are people with similar ailments who talk constantly about them and exaggerate their symptoms while detailing them and listening to those of others.

Mountain or Sea-Coast.—It is always a problem whether a patient shall be sent to the mountains or the sea-coast. Extremes of heat and cold must be avoided. In summer the Maine coast, or the mountain regions in the interior of Maine, may prove excellent. The climate of Canada is very much like that of Maine. The patients are apt to have a quieter time because there are not so many summer visitors. It may be that a number of trials will have to be made before the most suitable locality is found for an individual patient. It may be true that at different seasons of the year different localities will have to be recommended; for neurasthenia runs a prolonged course and will take a long time to improve. It is important that wherever patients go they must pay persistent attention to hygienic rules. There must be no staying up late at night, no irregular eating, no tendencies to dissipation, and as far as possible, no temptations to over-exertion.

Mineral Springs of the United States.—Dr. James K. Crook read a paper containing a brief account of the principal mineral springs in this country. He said that with one exception the mineral springs in the United States contain mineral ingredients that are stronger for therapeutic purposes than those of any part of the world. One class of mineral waters is not so strong in this country as in Europe; these are the sulphated salines of which we have none to compare with the Hunyadi Janos, the Rubinat or the Apenta. The famous springs, such as those at Carlsbad and at Wiesbaden or at Homburg, are better represented in this country than abroad. As a rule, the hotels in this country are better, yet every year there is a hegira to Europe to visit watering-places.

Neglect of the American Mineral Springs.—The principal reason for the neglect of American mineral waters is ignorance of their therapeutic quality. This is due primarily to the fact that our professors of therapeutics in this country know very little and teach less of the value of American mineral waters. Abroad the subject of climatotherapy and balmeotherapy are taken much more seriously than here. In America the precious physical therapeutic measures are unfortunately neglected. There is not a university in this country that teaches these subjects and as a result the graduates must learn about the mineral springs of the country from more or less quackish circulars. This is exactly as it should not be. Not only should our American feeling of patriotism prompt us to know something of the resources of our country and its history, but our devotion to the cause of American medicine should bring us to realize how much value American mineral waters may be in the treatment of disease.

Daily Regime.—One of the most potent factors for the attainment of therapeutic results at foreign spas is undoubtedly the regular daily life that is laid out for patients who come to take the waters. Here in this country no such régime is established, the waters are taken at the whim of the patient, and hence little benefit is obtained. The patients seem to think the only rule necessary to keep as full as possible of the mineral water, confident that this must work wonders. Needless to say no such results are obtained in this country as at Carlsbad or at Homburg. The change of scenery, the absence of dust, etc., do good, but if the patients were directed to mineral springs with more knowledge of what was properly suited to them and with letters to the physicians resident at the springs, then the benefits to be derived from this form of therapeutics would soon be recognized here in America.

Therapeutic Influence of Climate Real.—Dr. L. Faugères Bishop said that the influence of climate or diseased conditions is something more than merely change of scene. The bodily sensation at the seaside is first restful and sleep-producing, and then, by a sort of reaction, exhilarating. As a consequence, rest is very much encouraged during the first days of seaside residence. With regard to climate and asthma it may be said that the patient must, as a rule, find out for himself, or herself, what is the most suitable locality. There are no cut and dried directions that can help the physician in the selection of a location. For nephritis the selection of a climate is not easy, though it must be borne in mind that the principal desideratum in the disease is to keep the skin actively at work to relieve the kidneys; and for this a climate in which there are very slight changes of temperature during the day, is very favorable. For neurasthenic patients summer tent-life is very favorable, and this is true also for the tuberculous. As a rule patients should not be brought suddenly from one climate to another, but the transition should be gradual. Patients also should not be permitted to hurry back to their old occupations and surroundings as soon as they feel better. Old people, as a rule, do very well, if, according to the old tradition, they are sent back to the climate of their childhood. The early adaptation of the organism to these climatic influences seems to make it most favorable for them in declining years.

Failure of United States Mineral Springs.—Dr. Simon Baruch said that the keynote of the failure of United States mineral springs is the lack of knowledge of the medical men of the country with regard to American mineral waters. It is not climate, but the management of patients in the climate that makes successful climatotherapy. Patients are not infrequently sent to most undesirable localities, as, for instance, sick children to hotels at the seashore where their parents are unable to provide for them as they would at home.

Dr. Knopf said that one of the things most needed in America is seaside sanatoria for tuberculous children. There is not a single one in this country, and there are thirty-eight with schools attached to them in France. This is a philanthropic movement of the most charitable kind that should be taken up.

BOOK REVIEWS.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Thirteenth Session, held at Niagara Falls, N. Y., May 27, 28 and 29, 1901. Edited by WALTER LESTER CARR, M.D. Volume XIII. Reprinted from Archives of Pediatrics, 1901.

THERE are in this volume a number of extremely practical and important papers on the general subject of children's diseases. Some of the titles give an idea of the value of the contents. The President's Address was on the early history of the summer diarrhea of infants. There is a study of 555 cases of summer diarrhea among the out-patient poor, by Charles Gilmore Kerley. There is a very thorough and informing analysis of thirty-two cases of congenital heart disease by John Lovett Morse. Dr. Jacobi of New York treats the subject of milk sugar in infant-feeding, while Dr. Francis Huber discusses infantile scurvy and marasmus. Dr. L. Emmett Holt has three articles, all of very special interest. One is the report of a case of high temperature of three months' duration as the result of double sacculated empyema, situated on one side of the diaphragmatic surface of the lung. Another is a note on the treatment of gastro-intestinal hemorrhage in the new-born by suprarenal extract and a third is on diphtheria of the conjunctiva treated by antitoxin. It is evident that the book should be in the library of all those especially interested in children's diseases.

THE NEUROSES OF THE GENITO-URINARY SYSTEM IN THE MALE, WITH STERILITY AND IMPOTENCE. By Dr. R. ULTZMANN, Professor of Genito-urinary Diseases in the University of Vienna. Second Edition. Revised by GARDNER W. ALLEN, M.D., Surgeon in the Genito-urinary Department of the Boston Dispensary; Instructor in Genito-urinary Surgery in Tuft's Medical College. F. A. Davis Co., Philadelphia.

ULTZMANN'S well known reputation for conservative thinking and practical observation in diseases of the genito-urinary tract are a sufficient guarantee that the present little book is a valuable one. The neuroses of the genito-urinary system in the male and the questions of sterility and impotence are treated in a way that can not but prove suggestive to those who have such cases to treat. The translator's supplementary article on nervous impotence is worthy of a place besides Ultzmann's essays, and this is of itself as high praise as could well be given it. The translation is admirably done and the little book well deserves a place in the library of at least the genito-urinary specialist.

DISEASES OF WOMEN. A MANUAL OF GYNECOLOGY. Designed Especially for the Use of Students and Practitioners. By F. H. DAVENPORT A.B., M.D., Assistant Professor of Gynecology in the Harvard Medical School. Fourth Edition. Lea Brothers & Co., New York and Philadelphia.

THE fact that this book has already been through three editions should show that it has firmly established its merits. It is designed as a manual, and it is no more. Hence, it is brief but concise.

Few writers seem to realize as Dr. Davenport has the necessity of making clear the so-called minor points. This is shown in the chapter on the technic of treatment of uterine displacements by the pessary. Most text-books treat this as of no importance and take it for granted that the use of the pessary is something to be learned by intuition.

The illustrations are sufficient for a work of its scope, but a trifle too schematic and diagrammatic.

THE PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery, Issued Monthly. Volume VI. General Medicine. Edited by FRANK BILLINGS, M.S., M.D., Head of Medical Department and Dean of the Faculty of Rush Medical College, Chicago, with the Collaboration of S. C. STANTON, M.D., May, 1902. The Year Book Publishers: Chicago.

So many reviews of reviews of medicine in its various departments and specialties are now being issued that the practitioner must find his choice hampered by an embarras de richesses. The practical medicine series, however, is certainly a very handy compendium of progress in various lines and has the advantage of not requiring that a medical man shall purchase more than just the review of the branch in which he is particularly interested.

The present volume is very well put together. The chapters on typhoid fever, on malaria and on diseases of the liver, of the stomach and of the intestines are very complete, considering the extent of the literature that has to be reviewed and the condensation required. The volume will find a place for itself even in the present crowded state of our literature.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

DISEASES OF THE INTESTINES. By Dr. John C. Hemmeter. Vol. II. 8vo, 679 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

MEDICAL AND SURGICAL REPORT OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK. Vol. V. Edited by Drs. A. J. McCosh and W. G. Thompson.

A MANUAL OF OTOLOGY. By Dr. Gorham Bacon. Thirtieth Edition. Demi 8vo, 445 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

LEHRBUCH DER KLINISCHEN OSMOLOGIE ALS FUNKTIONELLE PATHOLOGIE UND THERAPIE. Von H. Zikel. 8vo, 418 pages. Illustrated. Fischer's Medic. Buchhandlung H. Kornfeld, Berlin.

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ORIGINAL ARTICLES.

CHRONIC JOINT DISEASE IN CHILDREN.[1]

BY HENRY LING TAYLOR, M.D.,
OF NEW YORK.

CHRONIC joint disease in children in nine cases out of ten, probably oftener, means tuberculosis. The reports of the Hospital for the Ruptured and Crippled for ten years (1891-1900) show 40,027 orthopedic patients under fourteen years of age, and 7,570 cases of joint tuberculosis, the large majority in children. The figures for the New York Orthopedic Dispensary and Hospital and for the Boston Children's Hospital show an even larger proportion. It is safe to say that tuberculous joint disease furnishes about one-quarter of the material of our large orthopedic clinics. Making all allowances for imperfect classification, the total of all other joint diseases is insignificant in comparison. We do encounter a certain number of rheumatic, traumatic, syphilitic and suppurative joints; also infections following measles, scarlet fever, typhoid fever, pneumonia —in fact, most of the acute infectious diseases; such joints are usually tuberculous, sometimes septic, but occasionally due to other specific infections.

Blenorrhagic infection of joints in children has been seldom observed in our clinic. We have seen a very few well-marked cases of arthritis deformans. Hemorrhagic and scorbutic joints have recently attracted attention and are of great practical importance. The joint complications of scurvy, unless very far advanced, are distinguished by being of all joint diseases the most readily and surely curable.

The comparatively small number of syphilitic bone and joint lesions in our orthopedic clinics seems remarkable. We occasionally find the hypertrophic sabre-like tibia, and the rather sluggish, not very painful joint effusions, particularly in the knee, where it is often bilateral, and curable under rest, compression, and specific medication. In some of these cases there are also nodular swellings of bone or implication of other joints, but in many no clear history of syphilitic symptoms, much less of infection either in the child or its parents, is obtainable. It is now recognized that dactylitis is tuberculous in the large majority of cases.

The suppurative arthritis of infants is essentially an acute infection, and if promptly treated by aseptic evacuation and drainage, it will seldom leave chronic disease in its wake.

Some cases of osteomyelitis near a joint are circumscribed and chronic. It is possible, though unusual, for the lesion to be bilateral and symmetrical, as in a case recently reported by Goldthwait, when the local symptoms were in or near the ankles, and the child was treated for some time in the Boston Children's Hospital for rheumatism; later the use of the X-ray revealed a well defined osteomyelitic focus. In this case the disease followed a fall, and the value of the X-ray for diagnosis was well illustrated. Of rheumatic joints in children the writer sees very little, although the diagnosis is not infrequently encountered. Pediatrists doubtless see more of it. At the same time one feels like exclaiming, "Beware of hypothetical rheumatism and especially of monarticular rheumatism in children!" The Ides of March were not more portentous for Cæsar than these for the hasty diagnostician. Equally dangerous is the easy dictum that the child will outgrow his defect, unless one knows that he will. In so far as concerns the joints we may conclude that the great white plague is far in the lead and there is practically no second.

As to the distribution of tuberculous disease among the various joints, statistics of over 13,000 cases show rather more than two-fifths vertebral, somewhat less than two-fifths located in the hip, and about one-fifth in all the other joints; of this remaining fifth the knee claims more than half. This disease affects by preference, then, the spine and larger joints, and the lower extremity much oftener than the upper. The primary lesion is nearly always in the cancellous tissue in or near an epiphysis; primarily synovial tuberculosis is rare. The joint is involved secondarily, and in the later stages may become the focus of a mixed infection by the addition of pus-producing bacteria.

One of the most marked characteristics of tuberculous joint disease is its insidiousness. It may exist unsuspected for months, when, sometimes after a fall or blow, a peculiar attitude, a knuckle in the spine, or a limping gait, arrest attention, previous symptoms having been unnoticed or misinterpreted. The fall, when it has occurred, commonly serves to reveal what already existed, but in some cases the local conditions following trauma are, no doubt, favorable to the lodgment and proliferation of the bacilli. It has been remarked that a comparatively slight injury is oftener followed by this kind of trouble than is one of great violence. In many cases there is no history of injury, but the disease follows measles, whooping-cough, scarlet fever, chronic intestinal catarrh or other exhausting disease. Whooping-cough and measles are most frequently followed by vertebral disease, possibly because the vitality of the tissues is compromised by the trauma due to coughing as well as by the toxemia. In many cases no cause can be assigned.

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[1] Read before the Pediatric Section of the New York Academy of Medicine, March 13, 1902.

Too much stress should not be laid on the family history which is often perfectly good. The frequent absence of pain in the early stages and occasionally throughout the disease adds to its insidious character, as do also the characteristic periods of intermittence of the symptoms. Local heat and constitutional disturbance may be absent during the invasion; the former is usually not present unless the infection becomes mixed.

The symptoms vary with the structural peculiarities and anatomical relations of the part involved, but the most characteristic one, and the one of most diagnostic importance, is stiffness or limitation of motion due to peculiar spasmodic contraction of the muscles. It is the most important object of a physical examination to reveal this symptom. If the hip or spine be suspected, it is necessary to undress the child entirely in order to study the gait and attitude critically, and to test joint mobility. Symptoms are often characteristic before they are prominent, and it is vastly important to recognize their beginnings. A certain carefulness in the movements and anxiousness of expression may be noted before there is much pain or constitutional disturbance. Pain when present in vertebral and hip disease is referred usually to the termination of the implicated filaments, but tenderness in accessible parts may be demonstrated often in disease of the knee, elbow, wrist, and ankle.

In vertebral disease the location of the pain and many of the symptoms vary with the region affected. In cervical disease the pains are in the neck, shoulders and back of the head; the neck is often turned or twisted to one side, while the chin drops, and there is resistance to motion. The child frequently supports the chin on the hands.

In dorsal disease the characteristic pains are at the sides or front of the chest and in the abdomen. Gastralgia is such a common symptom that if it be persistently recurrent the spine should always be examined. The breathing may be short, jerky and shallow, leading to the suspicion of disease of the lungs. The gait is shuffling or gliding, and often sidling, with the knees bent and the toes turned in. The spine is held stiffly and often bends to one side before there is noticeable posterior deformity.

In lumbar disease the pains may be in the loins, lower back, lower abdomen, through the hips or down the thighs; they may even be referred to the knee, leg, ankle or foot. The lumbar spine becomes flattened, and there may be lateral deviation with or without contraction of the psoas. This latter symptom, if severe, may cause limping. In all these locations there is difficulty in stooping and in recovering from the stooping posture. The child is often restless at night, and may cry out or wake up screaming. Pain is often provoked by coughing, sneezing, laughing, hiccoughing, by being lifted or jolted, or by anything which subjects the spinal column to a shock, jar or strain. The pains are in some cases paroxysmal and very severe, in others the child may show a vague discomfort by peevishness, restlessness at night, and disinclination to play, and endeavors to ease the strain on the back by resting his hands or elbows on the furniture. Occasionally the child suddenly refuses to walk. It will be seen that the early symptomatology of vertebral disease is exceedingly varied and characteristic when carefully studied. In passing it may be remarked that pressing over the spinous processes to elicit pain or tenderness gives no reliable information.

To show how readily Pott's disease of the spine may be mistaken for a great variety of common affections, the following list of the previous diagnoses in a series of private cases is given. The erroneous diagnosis had usually been followed by corresponding treatment, in most cases useless, in some injurious, while in all precious time was lost. Rheumatism was diagnosed eleven times, no disease three times, weakness twice, rapid growth, affectation, nervous exhaustion, neuralgia, inflammation of neck muscles, once each; torticollis was diagnosed in two cases (one with operation), lateral curvature in five patients, most of whom were told to exercise, hip disease in six, asthma in two, pneumonia, disease of the lungs, and disease of the heart in one each. Colic was diagnosed three times, lumbago twice, abdominal trouble, neuralgia of the bowels, inflammation of the bowels, and painter's colic, each once. Worms were diagnosed twelve times, and in two cases a vermifuge demonstrated their presence, but did not relieve the symptoms. Kidney colic and gravel were diagnosed three times, stone in the bladder once (with lithotomy), uterine colic once. This incomplete list demonstrates, I think, the necessity of constantly keeping spinal tuberculosis in mind in pediatric practice, and of a critical examination in case of doubt.

The medical student clings with as desperate tenacity to the knee-pain of hip-disease as a pathognomonic symptom, as does the school boy to the date of the discovery of America as the key to all history. It is well to know that disease of the lumbar spine, knee disease and other affections may cause pain in the knee and that it is frequently absent in hip disease. The endeavor to elicit pain in the suspected hip by forced movements, pounding on the heel or otherwise, is perfectly useless, and may prove injurious. One should, on the contrary, seek to demonstrate and define the limitation of motion, and the involuntary spasmodic muscular contractions without pain to the patient. The limitation of hyperextension at the hip is the earliest and most delicate test.

In knee disease the joint very early becomes flexed and causes limping, which may be intermittent. A fusiform swelling gradually obscures the landmarks of the joint and points of tenderness over the femoral or tibial epiphysis may be elicited by careful search. Before long the enlargement of the epiphysis becomes evident, and the femur and limb of the affected side become demonstrably longer than their mates.

Louis, Rokitansky, and others have called attention to an antagonism between rheumatism, or gout, and pulmonary tuberculosis; this antagonism probably extends to tuberculous disease of the joints. Few rheumatic patients suffer from tuberculous joint disease, and few of the latter suffer from rheumatism. There also seems to be a well-marked antagonism between rickets and joint tuberculosis. For several years we have looked for tuberculous joints in rachitic children; a single case has rewarded our search. Considering the prevalence of both affections it would seem that rickets affords a relative immunity from joint tuberculosis. It would be interesting to know if this antagonism is confirmed by its behavior towards glandular, meningeal and visceral tuberculosis.

There are probably few chronic diseases in which correct early treatment is so beneficial and in which the results of delay are so serious as is the case in the chronic joint diseases of children. The diagnosis can nearly always be made with certainty by a careful study of the symptoms and physical signs before the occurrence of loss of substance; the prospects and even the life of the child may be sacrificed if proper treatment is delayed until the correct diagnosis obtrudes itself by the appearance of marked disability or noticeable deformity. In case of fire we do not postpone investigation until the beams are falling, but we locate the difficulty and apply the remedy as soon as smoke is detected. In the cases under discussion the earliest warnings cannot be too carefully heeded.

A STUDY OF GASTRORRHAGIA, WITH SPECIAL CONSIDERATION OF HEMORRHAGE DUE TO ULCERATIVE PROCESSES AND THEIR SURGICAL TREATMENT; REPORT OF CASES.[1]

BY HENRY M. JOY, M.D.,
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Gastrorrhagia is manifested either by hematemesis, or vomiting of blood, or by a combination of hematemesis and malena, or passage of blood in the evacuations. When blood is present in the stomach from any source it may be vomited or passed with the evacuations or both. In the majority of cases of profuse hematemesis malena is also present. There may, however, be malena with no hematemesis, when in the great majority of instances, though not in all, the hemorrhage arises from the intestinal tract below the pylorus.

In the consideration of a case of gastrorrhagia the following points must be weighed, viz.: Has the hemorrhage occurred from some portion of the body above the stomach and the blood been swallowed, as is not infrequently the case; or is the stomach itself the seat of hemorrhage?

In fracture at the base of the skull and in other injuries of the head blood may pass into the stomach and afterward be vomited. The source of the blood here is, of course, easily determined. In epistaxis a similar event may occur, in which case the hemorrhage from the posterior part of the nose is usually accompanied by a flow of blood from the nostrils. If, however, there is no flow anteriorly examination of the throat and nasopharynx will demonstrate the presence and source of the hemorrhage. If, as in some cases, the hematemesis occur some time after the nasal hemorrhage has ceased, a history of a previous attack of epistaxis can usually be obtained.

In bleeding from the lungs, if profuse and slow, blood may be vomited, and difficulty sometimes arises here in differentiation. The difficulty arises from the incomplete history the patient is able to give either of the present or a past hemorrhage and the fact that an attack of hemoptysis is not infrequently accompanied by vomiting or the blood may be swallowed and subsequently vomited.

Profuse hemoptysis may arise from the following conditions: (1) Rupture of an aortic aneurism into a bronchus or the trachea. This is rapidly fatal. (2) In pulmonary tuberculosis: (*a*) in the early stage of the disease the initial hemorrhage, (*b*) in the course of a progressive tuberculosis, (*c*) from rupture of an aneurismal branch of the pulmonary artery into a cavity (commonly fatal).

The practical question of diagnosis between these conditions and hematemesis may be decided in the following ways: By the mode in which the blood is brought up, by the symptoms and physical signs present and by an examination of the blood ejected. In hematemesis there is one, and only one, bringing up of blood; this may be repeated once or twice or more, but when the stomach is emptied the vomiting ceases. In hemoptysis, following the large hemorrhage which has put us in doubt as to its source, there will be subsequent slight hemorrhages; possibly but a few particles of blood brought up by coughing after the initial hemorrhage. The physical examination of the chest will also be a strong factor here in differential diagnosis. Following a profuse hemoptysis an alkaline sputum may be raised, streaked with blood and containing tubercle bacilli. With hematemesis the blood is usually mixed with stomach-contents and is acid. In hemoptysis the blood is mixed with a large amount of air and consequently the tendency is to a bright red color, while in hematemesis the blood is not mixed with air, is darker and often partially clotted. Hemoptysis is often preceded by an inclination to cough, due to tickling in the throat and a sensation of warmth in the chest, while in gastric hemorrhage, nausea and retching alone precede the attack. There is no rusty or bloody sputum following hematemesis.

In case the seat of hemorrhage is the stomach, what is the lesion present? The decision of this point rests almost solely on a recognition of the clinical symptoms present of the individual lesion.

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[1] Read before the Upper Peninsular (Michigan) State Medical Society.

In a profuse gastrorrhagia the diagnosis lies between ulcer, mechanical congestion, and carcinoma. In carcinoma we find continuous, dull pain, at times becoming paroxysmal in character, violent and frequent vomiting, often periodic, and at times from an empty stomach. If the stomach contents be acid, this is due to the presence of organic acids, as hydrochloric acid is usually absent in carcinoma. The blood ejected is more often decomposed than recent—presenting the well known coffee-ground appearance. Obstinate constipation is usually present. Cachexia is marked in advanced cases. The disease is most common in adults of from forty to sixty years of age. Tumor is palpable in some cases. The presence of the Boas bacillus may sometimes be determined.

Mechanical congestion may be the cause of gastric hemorrhages. These arise as a result of portal obstruction, more commonly directly from pressure on the portal vein itself, from thrombosis of the portal vein or from cirrhosis of the liver; less commonly as a result of dilatation of the right heart from whatever cause, or from pressure on the vena cava inferior near its entrance into the right auricle. Thrombosis of the portal vein, according to Albutt, is a well-characterized, though seldom readily diagnosed affection. It is caused most frequently by compression of the intrahepatic branches of the portal vein in cirrhosis, syphilis, or tumors of the liver, or of the main branches or trunk by fibrous perihepatitis, chronic peritonitis (tuberculous), enlarged glands, impacted gallstones or tumor. There may be also disease of the wall of the portal vein either primary or secondary to some neighboring pathological condition. The classical symptoms resulting from this condition are ascites, hematemesis, enterrhagia, splenic enlargement, dilatation of the superficial abdominal veins and progressive marasmus.

In considering diseases of the liver which might result in mechanical congestion, particular attention must be directed (Ewald) to hemorrhage from dilated esophageal veins. These vessels form part of the collateral circulation for the blood in the portal vein and may become extremely varicose even to the point of rupture. If the escaping blood be swallowed and subsequently vomited, it may strongly simulate hemorrhage from the stomach. Blum, Litten, Ewald, and Osler report cases of this kind. The history and symptoms of a case of cirrhosis are sufficiently well known and do not require discussion in this paper. The chief anatomical features of mechanical congestion found in the stomach are as follows: (1) Congestion of the mucous membrane, especially of the pyloric part with submucous ecchymoses which become pigmented areas. These are not infrequently seen at autopsy. (2) Minute erosions of the mucous membrane from which bleeding may occur and larger areas which heal with a smooth scar without contraction.

Ulcer is the most frequent cause of hemorrhage from the stomach, occurring in slightly less than 50 per cent. of the cases, and *per contra* hemorrhage from the stomach is the most important sign of gastric ulcer. Since the process of ulceration implies a solution of continuity of the coats of a vessel the rational conclusion is, of course, that there will be an effusion of blood. As a rule, the opening in the vessel is small and is soon obliterated by the formation of a coagulum, and for this reason the hemorrhage from small vessels is not of much import and often passes unnoticed by both physician and patient. It is only when a larger vessel is eroded and a larger quantity of blood enters the stomach that grave symptoms appear.

In a typical case of such hemorrhage the patient experiences a sensation of fulness and warmth in the epigastrium. There is anxiety, restlessness, and possibly vertigo. The face is pale and drawn, the pulse rapid, soft and compressible. Usually in from ten to thirty minutes a feeling of nausea is felt, followed suddenly by vomiting of large quantities of blood, either bright arterial, brownish or black in color, possibly mixed with food. The patient as a rule feels faint, the face becomes blanched, and the extremities cold. In other words, we have a typical picture of surgical shock. If the hemorrhage continue uninterruptely, death is likely to occur from loss of blood; or if the hemorrhage be due to the erosion of a large vessel, death may ensue even before any vomiting has occurred. It should be borne in mind that hemorrhage may occur and may be unnoticed, passing on and being discharged in the evacuation so changed as to be unrecognized by the patient. After the initial symptoms of a moderately severe hemorrhage have passed, there is a stage of reaction in the majority of cases. While the bleeding has left the patient blanched and with bloodless lips and mucous membrane, and has somewhat depressed the temperature of the skin, the signs of reaction are shown in the recovery of the pulse. This becomes more full, even bounding at times and eventually slower. The reactionary stage naturally occurs more quickly and is more marked in those not debilitated by previous illness.

Physical examination in this form of hemorrhage reveals nothing of importance. Possibly, if a typical ulcer be present, there may be a localized tenderness in a larger area of general tenderness. This sign is, however, far from infallible, as will be shown later.

The mortality of gastric ulcer is greater, I believe, than is generally supposed. Warren and Gould, in the International Text-Book of Surgery, state that "death occurs in 15 per cent. of the cases, 7 per cent. being due to perforation," leaving 8 per cent. who die from hemorrhage. The prognosis in hemorrhage is worse after thirty years of age than in those under that age.

As intimated in the title of this paper, the treatment of hemorrhage of the stomach will here be considered from the surgical standpoint only.

There are two conditions indicating surgical intervention in gastrorrhagia, namely, profuse or repeated hemorrhages. Andrews and Eisendrath (Ann. of Surgery, 1899, October) maintain that "if medicinal treatment does not improve the patient's condition, a bleeding ulcer of the stomach will inevitably prove fatal without surgical intervention." They indicate surgical intervention for "repeated small hemorrhages or for profuse hemorrhage occurring more than once." Five hundred cubic centimeters is the amount determined upon by them as one which should be considered sufficiently severe to warrant immediate operation. While there may be doubt in some cases as to the actual existence of an ulcer, when the hemorrhages are repeated or profuse, operation is certainly justifiable. As a rule it is impossible to tell before opening the abdomen on what part of the mucous membrane the ulcer will be found; pain and localized tenderness are of little or no value in this connection. Even after the abdomen has been opened it is seldom possible to determine the location of the ulcer until the stomach itself has been opened. The surface should, however, be inspected, and in certain cases adhesions, slight thickening of the gastric wall, or change in color of the serous coat may indicate the location of the lesion. Of some slight aid to the operator in locating the site of the ulcer may be the generally acknowledged fact that the majority of ulcers are located in the pyloric region and in the greater curvature. It should not be forgotten that ulcers are often multiple, and further search should be instituted after locating one until the entire gastric mucosa has been carefully examined.

There is one point to which I wish to direct your attention, and that it the fact that "it is not always the typical round ulcer that causes the gravest symptoms." Severe and indeed fatal hemorrhage may arise from what appears to be a mere abrasion of the mucous membrane which is generally the seat of a chronic gastritis, as may be seen by the spongy and congested appearance of its lining membrane (Warren-Gould). In the midst of this abraded area a bleeding vessel may be found or a hemorrhage started by gentle friction. This will, I think, be well illustrated in the cases to be reported at the close of this paper.

The technic of the surgical treatment of gastrorrhagia due to ulcer naturally resolves itself more or less into the technic of the surgical procedure in gastric ulcer. An incision from three to four inches long is made in the median line between the ensiform cartilage and the umbilicus and the stomach exposed and carefully examined for changes on its exterior which might aid in locating the ulcer. Gauze strips should then be packed into the wound, carefully walling off the peritoneal cavity against the escape of stomach-contents. The stomach is then incised for a distance of from two and a half to three inches and its interior systematically inspected by inverting its wall from without piece by piece and bringing the mucosa opposite the incision, and if necessary everting it through the opening. Having found the ulcer, one of the following plans may be adopted:

1. Simple excision of the diseased mucous membrane and suture of the cut edges.

2. Resection of a portion of the gastric wall if the ulcer be deep, involving the muscular wall, or when there are several ulcers within a limited area.

3. The performance of a gastro-enterostomy. This procedure is indicated in cases in which a considerable area of mucous membrane is involved in a chronic catarrhal inflammation with numerous ulcers. This method may also be used in cases of large and deep ulcers, and is sometimes more satisfactory than resection of a portion of the gastric wall. After the lapse of a few months, the diseased mucous membrane becomes healthy, as is evidenced by the absence of pain and digestive disturbance. These symptoms are caused by spasmodic contraction of the pylorus producing stagnation of food, which is relieved by the anastomotic opening.

4. In cases of multiple erosion none of these methods seem to the writer to be practicable unless it be the procedure first mentioned, namely, excision of the diseased mucous membrane and suture of the cut edges. Better than this, I think, is the method adopted in the cases which will be reported—of submucous ligation by the purse-string ligature. This method seems to me to possess the following advantages: (1) It inevitably stops the hemorrhage. (2) There is practically no additional destruction of mucous membrane, as would be the case if the mucous membrane were excised. (3) There is little or no formation of scar tissue to contract and give rise to subsequent disturbance.

In connection herewith I submit reports of the following cases:

Case I.—Miss J., aged twenty-four years, seen in consultation with Dr. C. J. Sorcen. Previous history negative except an unsatisfactory history of gastric disturbance covering a period of several years. The symptoms during this time were not marked. There was at no time vomiting or marked pain, the greatest complaint being a slight distress after meals felt in the region of the stomach. On the night of November 17, 1900, following a very hearty meal the evening previous, the patient was seized with an attack of hematemesis. This ceased after a short time, and the patient was first seen by the writer on November 21, at five A.M.; at this time there had been a recurrence of the hemorrhage which had been quite profuse. Patient's general condition was good. Pulse 100. Temperature 99° F. Morphine was given and an ice bag applied to the epigastrium. There was no further hemorrhage until four days later, when there was a recurrence which was very profuse. Twenty-three attacks of vomiting of blood, all profuse, occurred from five P.M. till nine A.M. the day following. Condition of patient extreme. Pulse 130, very weak and thready. On local examination there was general tenderness over the entire epigastrium, and at one point in particular, just over the cardia, there was a point of extreme tenderness. In view of the repeated and profuse hemorrhages operation was advised and accepted.

After the usual preparations of the field of operation the abdomen was opened by a median incision beginning at the ensiform cartilage and extending downward about three inches. The stomach was immediately found and brought into the wound and incised for a space of two and one-half inches longitudinally. Upon opening the stomach large quantities of semi-fluid blood and mucus escaped. This was carefully sponged away as it escaped, so that none entered the peritoneal cavity. The entire mucous membrane of the stomach was intensely congested and spongy and near the pyloric end were five eroded points that were bleeding very freely. These points were enclosed one by one in purse-string ligatures of No. 2 catgut, the hemorrhage ceasing immediately upon completing the ligation. The stomach was then closed with four rows of sutures, the first closing the mucous membrane, the second the muscular layer, the third the peritoneum. The whole was then covered by a row of Lembert sutures; the abdomen was closed in the usual way. The patient was in profound shock and an intravenous injection of salt solution was given while she was still on the table. Pulse after intravenous injection 160.

Following the operation the history was briefly as follows:

November 26th: Slept from eight to nine P.M. Ten P.M. vomited some mucus tinged with dark particles of blood. Passed twelve ounces of urine during night. Patient was given normal salt solution, one pint every hour per rectum, and strychnine, gr. $^1/_{20}$, every three hours.

November 27th: Pulse 110. Temperature 100. Vomited a little greenish mucus at eleven A.M. Expelled gas freely and passed urine freely.

November 28th: Pulse 120. Temperature 101° F. Several small emeses during day containing nothing but mucus. Patient put in Fowler position (reversed Trendelenburg). Passing gas very freely. Salt solution per rectum given every two hours and nutritive enemata every four hours. All very well retained.

November 29th: Pulse 112. Natural movement of bowels in the morning. Thin, watery stools and large amount of gas passed.

November 30th: Pulse 80. Condition excellent.

December 1st: Pulse 82. Temperature 99.8° F. Condition excellent.

From this time the course of the case was uneventful. On December 8th the patient was given one ounce of sterile water every two hours by mouth, the first since the operation, and on the day following was given small quantities of milk and lime water. Up to this time nothing whatever had been given by mouth since the day of operation. At the present time the patient is in perfect health and had been entirely free from all gastric symptoms.

Case II.—Mrs. M., aged twenty-eight years. Seen in consultation with Dr. C. H. Holt, of Red Jacket, on January 21st. I regret that I am unable to obtain fuller particulars of the early part of this patient's illness. The history that I have been able to obtain is as follows: Patient had been subject to gastritis (catarrhal) for about six years, for which she had been treated at different times with drugs and lavage with temporary improvement lasting for a longer or shorter period of time, when she would have an exacerbation and again take treatment for a time till relieved temporarily, when she would cease treatment and return to ordinary methods of life and diet. On January 17th she was seized with an attack of hemorrhage from the stomach, not very severe in character, and which ceased after a short time only to recur in a day or two. These slight hemorrhages continued until January 21st when she had several severe hemorrhages following each other in rapid succession. I first saw the patient late in the afternoon of the 21st. Condition at this time was as follows: Pulse 150, temperature 99° F. Patient extremely restless, face pale, pinched and drawn, mucous membranes bloodless. Vomiting blood, both fluid and clotted, every two or three minutes. Condition extreme. Immediate operation advised.

Patient was at once prepared for operation. The usual incision was made and the stomach brought into the wound. No external changes noticeable. Upon opening the stomach large quantities of mucus and fluid blood escaped. This was rapidly sponged away and the bleeding points were sought for. The conditions found were exactly the same as those described in the previous case. Namely, an intensely congested mucous membrane with numerous points eroded in the pyloric portion which were bleeding very freely. These points (thirteen in number) were ligated separately with the purse-string ligature and the wounds closed in the manner described in the preceding case. Operation lasted one hour and twenty minutes. Pulse at close of operation 180. Normal salt given intravenously while patient was still on the table. Strychnine, gr. $^1/_{30}$, given every two hours for twelve hours, also salt solution per rectum every three hours.

The following day the pulse had fallen to 130. No further hemorrhage had occurred, and the patient expressed herself as feeling very well. From this time until January 28th the patient improved rapidly in every respect from day to day. At noon of January 28th the patient complained of feeling nauseated and became very restless. The pulse rose from 98 to 110 within thirty minutes. A further hemorrhage was diagnosed, but as there was no vomiting and as the general condition was fair, the usual temporizing measures were adopted. At 11.30 P.M. patient again complained of nausea and shortly after vomited a mouthful of dark blood. At 11.45

there was another attack of vomiting at which time she brought up a little blood. At 12.30 A.M. a very profuse hemorrhage occurred. The pulse by this time had risen to 140. Another profuse hemorrhage at 10 A.M. Pulse 160. A second operation was advised and performed at once.

The points previously ligated were found to be in perfect condition, but in the cardiac end of the stomach were some six or eight points that were bleeding very freely. These were ligated in the manner previously described and the operation completed. Just as the closure of the abdomen was completed the patient suddenly collapsed and died in a few minutes.

The particular points to which I would call your attention in connection with these cases are the following: (1) The fact that they were cases of multiple erosion, a condition usually thought to be due to mechanical congestion from some source or other, and yet in which no evidences were present pointing to any cause which might produce such mechanical congestion. (2) The fact that here are two cases with distinct localized tenderness, pains radiating to a localized point in the back, and gastric hemorrhage, and yet with no evidence of the typical gastric ulcer usually diagnosed with these symptoms present. (3) The fact has been demonstrated fully, I think, that in this particular class of cases, at least, the method suggested is the only practicable way of controlling the hemorrhage.

A CASE OF ISOLATED NEURITIS COMPLICATING TYPHOID FEVER.

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Widely disseminated neuritis complicating and following acute disease has been observed many times and is quite possible of explanation by assuming a specific action of the toxins of the disease or a special vulnerability of the nervous tissue. Localized neuritis, however, is a much rarer complication.

With the desire of placing on record a case of isolated neural inflammation complicating typhoid fever, the following patient was presented before the Cleveland Medical Society, his condition demonstrated and the following history obtained: M. K., male, white, laborer, thirty-eight years of age, born in Poland, married and the father of three healthy children. He has never suffered from any severe illness and has always been a strong, healthy man. On June 8, 1901, he developed a typical case of typhoid fever and was attended by Dr. P. S. Smigel. His fever pursued a normal course and he was convalescent at the end of three weeks. Contrary to orders he began to eat heartily, consuming at one meal over a pound of beefsteak. Twenty-four hours after this indiscretion he was seized with chills, return of fever, abdominal pains, and much diarrhea. His temperature rapidly ascended to 104° F. and he became wildly delirious and so unmanageable that they were compelled to send him to St. Alexis Hospital, where he came under the care of Dr. J. V. Kofron. He remained delirious for a period of nearly three weeks and had very high temperature. His delirium was so furious that it became necessary to place anklets and wristlets on him in order to secure him to the bed.

About four weeks later he became convalescent, when it was discovered that he had considerable swelling of both limbs, complained of much pain in them and of some numbness and tingling in the distribution of the left external popliteal and left ulnar nerves. There appeared on the left ulna and on the right tibia some hard tender nodes which were evidently periosteal tumefactions. He also complained of much pain in the neighborhood of the sternum opposite the fourth costal insertion, at which point a nodular swelling appeared that was tender to the touch.

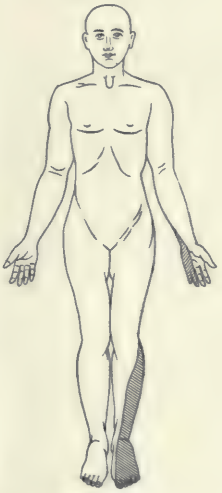
Fig I.

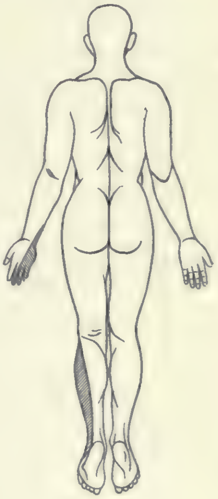
Fig. II.

When I first examined him, October 13, 1901, both feet and legs were edematous, the periosteal nodes had disappeared from the shins and ulna, but there was an indurated bluish swelling at the fourth costosternal articulation which was undoubtedly suppurating, since examination revealed a marked leucocytosis, and physical evidences were also in favor of a deep-seated fluctuation. He was referred to Dr. C. B. Parker, who concurred in my expressed opinion of necrosis; he advised operation but it was refused. When the shoes were taken off it was noted that the left toes dropped downward, and a left foot-drop was particularly manifest while walking.

Examination revealed the presence of anesthesia corresponding to the integumental distribution of the left external popliteal. (See Figs. I. and II.). The plantar surfaces of the foot and toes were sensitive.

Examination of the hands revealed a registry of forty with the left hand and forty-five with the right. The fact that the patient was left-handed affords quite positive evidence that the left hand-grasp was weakened. He complained of numbness and tingling in the distribution of the left ulnar nerve. Examination showed the absence of pain and touch sensation in the distribution of the left ulnar nerve which is well shown in the accompanying cutaneous charts.

It might be assumed that these local paralyses were due to pressure exerted on the nerves during his illness by the bands which were placed on his limbs for restraining purposes, but investigation shows that the bands were not placed about the knees nor about the arms above the elbows; hence it is quite clear that the pressure exerted by them could not have been the cause of the neuritis. All intoxications and most poisons known to produce neuritis are quite certain to affect in a selective manner the same nerves which were inflamed in the related case; indeed, the external popliteal or peroneal nerves, as well as the ulnars, seem to be especially vulnerable to the action of the various toxins of acute infectious disease; this is particularly true as to the former. Why this obtains we have no definite knowledge.

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PATHOLOGY OF EMPYEMA OF THE ANTRUM OF HIGHMORE.[1]

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THE air-cavities in the bones of the face are all lined with mucous membrane, the columnar ciliated epithelium of which rests on a connective tissue stroma with few glands and blood-vessels all nourished from the periosteal lining. They all communicate with the common nasal chamber by small openings, so that for the most part they resemble a set of flasks with one narrow mouth.

That these cavities have some important function, aside from incidentally contributing to the lightness of structure of the bones enclosing them, seems hardly to be doubted. We naturally think of a function suggested by their form and relation. A glance at the anatomy of this region shows the very intimate relations which exist between the frontal, ethmoidal and maxillary sinuses which are so placed that they have a common opening in the middle meatus of the nose into that slit-like cavity called the hiatus semilunaris at a point situated about the very middle of the nasal breath way, or air-passage—practically three flasks with a common mouth over which the wind plays. Now, what well-known principle in physics does this arrangement suggest? You will at once think of the Sprengle air-pump. Sprengle conceived the idea of pouring mercury down a capillary funnel-tube connected laterally with a flask which he desired to pump free of air; as the mercury fell past the open mouth of the flask the air was gradually exhausted from it. This you will at once recognize as the principle so universally utilized in the atomizer, only here, instead of having a closed flask, we have one connected with the outer air, so that the constant air-pressure causes the fluid in the flask to be drawn out continually to the end of the atomizing tube and there spread in scintillating spray. What useful purpose does Nature wish to serve by having a Sprengle's air-pump in constant operation here from the earliest hours of childhood throughout the whole of life? The manifest purpose which such an arrangement of physical forces serves is that of abstracting moisture from these cavities. The effect of such a function is simply that of cooling the tissues surrounding them by abstracting their heat in vaporization. This is not a theory nor a fancy which I am giving. I am rehearsing the physical facts which obtain in the peculiar form and interrelation of the nasal chambers with their adjacent sinuses.

If, then, these hollow chambers are meant to functionate as air-pumps and evaporating surfaces, the existence of an empyema would destroy all such function and would *a priori* bring with it a certain kind of disturbance of the economy connected with the organs and parts of the head lying in and around the sinuses. Now, clinically, what is the constant testimony of those who have a cold in the head, an influenza, or a sinuitis of one or more of these air-chambers, or other pathological condition of the parts affecting them or their nerve- and blood-supply? Simply this, that a sense of fulness exists in and around the face and forehead, the head feels compressed and heavy, the faculties are dull and irresponsive, the memory fails, concentration is impaired, and altogether an indefinable sense of ill-being exists which the patient is seldom able to express satisfactorily to himself or to the physician. In other words, the air-cavities are water-logged and the subjacent organs are deprived of that comfort which should come to them by the simple process of evaporation and abstraction of heat.

Although the subject of empyema of the antrum of Highmore has been well studied by many eminent specialists during the last quarter of a century, there has not been a very general recognition of this condition and its pathological importance.

It is but a short time since I was in conversation with a distinguished physician, who is a member of this Society, and learned that he had gone through a most trying experience, extending over a long period of time, enduring great suffering and getting no satisfaction nor relief under the hands of eminent and willing specialists, until by accident it was discovered that he was the victim of an empyema of the antrum of Highmore. I know another physician, also a member of our County Society, who gave up a large and lucrative practice in a distant field because of sufferings which he could no longer endure there, not knowing till long afterward that all his trouble had its origin in a diseased antrum, which trouble disappeared promptly, as in the other case, when properly recognized and treated. This lurking, obscure and ill-defined sense of great discomfort, the exact location of which seems not to be more evident to the patient than to his physicians, even though the patient himself happens to be a physician, is one of the characteristics of this disease and one which I mention first and place in highest relief in treating of its pathology. Put in a general way, this observation points out that empyema of the air-cavities of the bones of the face gives no certain and pathognomonic symptom of its existence, unless it be that, in a large percentage of these chronic empyemata, there is such a disturbance of the economy of the nervous system as to lead to consultation with the nerve specialist. Greville MacDonald has said that the diagnosis of antral disease is one of the most difficult points in the domain of pathology. The practical deduction from this is that all cases of ill-defined but profound disturbance of the nervous system should direct the attention to possible pathological states in connection with the sinuses opening into the nasal chambers.

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[1] Read before the Brooklyn Pathological Society, March 13, 1902.

I have for some time been watching with deep interest and sympathy the unfortunate sufferings of a patient who has all her life been the subject of a congeries of varying symptoms most distressing to her, yet not so great as to incapacitate her for her work as a student and teacher. She is an utter stranger to sound or restful sleep. She has been in daily companionship for a score of years with pain—pain in the head, pain in the chest, pain in the limbs, numbness and exquisite tenderness to even light touch on any part of the body. Frequently she had vertigo, things seemed to be moving rapidly to the left; being but momentary, this did not alarm her. At times her faculties seemed clouded; she lacked the power of concentration; and her memory, which was almost a faultless faculty, would temporarily fail her. She was nervous and hypersensitive to pain but keenly intellectual and rational. Her hearing was painfully acute, so that a watch would keep her awake. When in slumber she would often suddenly awake with a start of alarm. With all this she did her daily work and put on flesh. The desire and need for relief led her to consult her physician regularly, but palliatives were all she received. She needed glasses and the oculist suspected nothing else. At last she found herself referred to me for relief of a dacryocystitis, and then I saw with most painful vividness the long distressing story of her sufferings. One look at those atrophied nasal chambers with their bad-smelling crusts, the edges of which glistened with pearly drops of fresh-flowing pus, showed the undeniable evidences of ancient, multiple, two-sided sinusitis with attendant involvement of the nasal duct. It explained her sickening parosmia, her pains and vertigo, and called for as prompt relief as could be given.

I draw this picture for the purpose of showing how easily cases of this kind, so manifestly in need of help, can pass under the observation of men of skill and knowledge in their profession and yet receive no adequate help because their trouble is not found out nor the cause removed. I say all this merely to emphasize that feature of these sinus cases referred to above—positive and genuine discomfort often most profound in its character and yet so vague and varied in its symptoms that even a neurologist will at times miss its true source and quality.

Having said the above I hope I have said what is most useful and valuable to say; and it is not my purpose to try to do the impossible by entering on an exhaustive study of the pathology of this disease. I have reviewed nearly all modern literature on the subject as far as it was within my reach; and my own conception of the present status of this pathology may be briefly summarized.

In the first place, the poverty of the blood-supply to the thin lining of these air-cavities, explains the relative paucity of granulations found when chronicity of inflammatory process is considered, and also the rarity of severe hemorrhages in these cases. Yet Scheppergrell,[1] in 1894, met with a case of such severe hemorrhage that the antrum had to be kept packed for four weeks to obviate fatal issue. He explains it by supposing that an angiomatous condition of the mucous membrane existed at the point where the trephine entered—which was disturbed by each attempt to remove the packing.

Lücke[2] (Strasbourg) narrates the case of a man of twenty-six years in whom bleeding characteristic of a vascular tumor occurred which required packing. The tumor grew; a second operation was done; a bony tumor was found covered with granulations. A large part of the tumor was removed with a chisel. The hemorrhage was so profuse that transfusion was done to save the patient. Tampons were kept *in situ* four weeks. Recklinghausen examined the tumor and pronounced it an angioma ossificans, or osteoma angiomatosa.

I have elsewhere[3] described a case in which alarming hemorrhage took place. The case was briefly this: A young man had had frequent severe nose-bleeds extending over a period of four years, at the end of which time double ptosis and diplopia developed. His general comfort was so decided that antrum trouble was not at first suspected by me, though it had been suspected by Dr. Peter Scott, his family physician, who had sent him to me. A careful examination of the nose revealed enough faults, however, to account for his ocular disturbances, and to these my attention was at first addressed with slow but sure success. There was no discharge from either nostril, except as it accompanied the process of repair after operative interference. The third operative step consisted in freeing the left middle turbinate from adhesions to the outer wall of the middle meatus and crushing its bulbous anterior end. Three days after that his remaining photophobia had disappeared and his diplopia had lessened so that he could at times look to the right without occasioning it. The ptosis was also less. Twelve days later his vision, which at the beginning had been $^4/_{10}$, was $^6/_{10}$ with each eye, and the ocular muscle tests were greatly improved. Five days after this, *i.e.*, three weeks after the third operative step, the patient had profuse bleeding and with it abundant purulent discharge from the left nostril. There had been no pus previous to this particular day. Now, however, at the point at which the middle turbinate had been freed from its adhesions was seen for the first time an abundant flow of most foul-smelling pus. There had been no odor before this time.

Enough of the left middle turbinate was next removed to give free access to the ethmoid cells and maxillary sinus. A loose tampon of cotton moistened in carbolic solution was put in to remain two days. Its removal was accompanied by hemorrhage and a free flow of pus. A similar tampon was again used. The left malar bone and the last upper left molars for the first time manifested tenderness. Throbbing of the temples and tenderness of the scalp were also complained of. With this second tampon *in situ* he was seized two days later with alarming hemorrhage and both nostrils were plugged to check it. I removed these plugs, found no bleeding-point and sent him home without tampon. I was called the next morning to his house to find him blanched by bleeding during the night. I removed the tampons he had himself introduced and replaced them by a loose one after again failing to find a bleeding-point, feeling certain in my own mind that the bleeding was from the antrum. He had no further hemorrhage, but pus continued to flow freely from that nostril for many days, during which the teeth and the malar bone were tender and the outer wall of the middle meatus was swollen, inflamed and tender, giving the character of an acute grafted upon a chronic empyema. At the end of two weeks diplopia and all other eye symptoms were gone, the pus discharge had about stopped; it soon after completely ceased and the ocular muscle tests showed absolutely healthy behavior.

In explanation of the repeated hemorrhages we may suppose that pus and granulations had been bottled up in the antrum by the adherent middle turbinate which may have been made adherent by a previous inflammatory condition. The final hemorrhage which preceded the prompt cure, without treatment addressed to the antrum, may have been due to complete exsanguination and collapse of granulation tissue with restoration to normal condition and behavior, or it may have resulted from active engorgement accompanying the new inflammatory process. To me the former seems most probable and at the same time accounts for the history of previous nasal hemorrhages.

Some of those who heard this history questioned the diagnosis because the aid of transillumination or exploratory puncture and irrigation was not invoked; they argued they had never seen a chronic empyema get well without radical opening, and it must have been another sinus than the antrum involved in this case. They were evidently not familiar with Dr. Jonathan Wright's estimate of the value of transillumination: "Good enough to amuse the patient, but wholly unreliable for diagnosis." There could have been no justification for exploratory puncture and irrigation in a case that was evidently getting well and proceeded to get well, no matter what might be missed thereby in diagnosis. As to spontaneous recovery, if one has never seen it, it does not necessarily follow it cannot happen, nor is that an argument to invalidate a diagnosis. But it ought to be generally known by those able to criticise that spontaneous recovery has occurred in both acute and chronic cases.

J. Garel[4] (Lyons) instances two cases of spontaneous recovery without treatment. Gradle[5] states that "antral disease of nasal origin may heal spontaneously." Bergeat[6] claims that spontaneous healing of chronic empyema is proved by the fact that the antrum has been found filled with connective tissue. Sendziak[7] gives the history of a case of double antrum empyema accompanying a case of diphtheria in a girl of eighteen in which spontaneous recovery took place.

Finally W. Lamb[8] (Birmingham) showed before the British Laryngological, Rhinological and Otological Association, October 28, 1898, a preparation illustrating the spontaneous cure of empyema of the maxillary antrum. The features of his preparation were as follows: (1) Carious second molar tooth, the caries affecting the palatal fang, the tooth firm in its socket. (2) Depressed and pitted cicatrix of the whole middle meatus most marked anteriorly where pus from the antrum usually lies. (3) Projecting upwards from the floor of the antrum a short cylindrical tube of bone leading down to the socket of the palatal fang of the carious molar. When the antrum was opened this little tube of bone was perfectly covered with continuous mucous membrane.

Then the author interprets the sequence of events: (1) Dental caries spreading to the floor of the antrum causing a purulent infection of the cavity. (2) Chronic empyema, overflowing, as usual, into the middle meatus and causing a local atrophic rhinitis. (3) Formation of a large carious opening in the floor of the antrum, and the gradual drainage of the cavity through the palatal fang of the carious molar. During this process of drainage new bone was gradually deposited round the opening, forming the little tube. (4) Discharge ceased and the tube healed over and the tooth was roughly filled with creosote wadding and amalgam tightly packed in.

As briefly as possible I shall merely outline the pathological findings. The pus of empyema is characterized by its pale lemon-yellow color and trimethylamine[9] odor due to the presence in it of the aspergillus fumigatus, which Bayer[10] had previously likened to the odor of old herring-sauce, dependent on the admixture of methylamine and di- and tri-methylamine. The other pathogenic organisms found in it are the staphylococcus pyogenes aureus; bacillus pyogenes fetidus; streptococcus pyogenes and Pfeiffer bacillus in pure culture; pneumococcus; bacillus pyocyaneus; colon bacillus; bacillus of diphtheria; tubercle bacillus.

Weichselbaum,[11] of Vienna, in a postmortem of all the accessory cavities of a large number of patients dead of influenza, found that inflammation of one or other antrum existed in 90 per cent. of the subjects examined. Both J. N. Mackenzie[12] and George Pinder[13] have noticed the discharge of a membrane from the antrum during irrigation and described by Pinder as pyogenic. This is an unusual finding. Scheppergrell found a membrane covered with aspergillus fumigatus. Besides pus, cheesy accumulations and debris are sometimes found. Luc[14] differentiates antrum pus from frontal sinus pus by the fact that antral pus is a little granular and never creamy, like that from the frontal sinus. Cysts containing pus have been found by Gradenigo[15] (Turin).

The antrum has been found filled with polypi.[16] Sometimes the antrum has been found subdivided into compartments and pus hidden in one of these.[17]

Hypertrophy of the tissues around the meatal opening is commonly found, often associated with polypi; and stenosis of the middle meatus, due to various hyperplasias, is a feature of empyema.

Sometimes there is distension of the antral cavity, but not, as was formerly supposed, on account of hydrops antri. Caries of the bony walls and of the neighboring bones and septum have been noted by Sir F. Semon[18] as accompaniments of empyema. Orbital cellulitis has been reported by Juler and Small[19] in empyema from a carious tooth.

Fink[20] (Hamburg) had a case of carcinomatous tumors filling the antrum in one who for twenty-four years had his right nostril filled with polypi. I have removed polypi which filled both nostrils in a man over seventy years of age who had had his nostrils thus filled for over fifty years, and there was, as far as I could see, no evidence of associated empyema.

Lichtwitz[21] found lung symptoms characteristic of tuberculosis in seven out of 147 cases of empyema disappear on curing the empyema. Bryan[22] gives a case of caries with empyema in which a needle was broken off in the tooth and gained entrance to the antrum. Others have reported teeth (Michael),[23] sequestra of bone (Spicer),[24] broken tubing (Combe)[25] and other foreign bodies[26] keeping up a chronic empyema.

Lichtwitz[27] gives five cases of sequestra separating in form of rings from the circumference of the opening made by a rapidly-running electric drill by means of which the antrum was opened. Richardson[28] reports two cases of asthma in empyema of the antrum; Dundas Grant,[29] a case of fits; Hudson,[30] violent clonic contractions of the facial muscles recurring every fifteen or twenty minutes and lasting from eight to ten seconds.

Now, as to the etiology, we know dental caries has been one fruitful cause of empyema. Formerly it was alone blamed; we now know it is not the sole cause. We recognize a rather frequently occurring acute maxillary sinusitis. Naturally the chronic would ensue in many cases, though the tendency is to spontaneous cure. But the swelling and hyperplasia of an acute condition may make resolution impossible by permanently closing the meatal opening.

Traumatism is a known certain cause, but not always ends in empyema. I saw a case yesterday in which a baseball had caused deformity of one antrum without producing an empyema. Luc[31] found one case caused by erysipelas which changed his opinion as to carious teeth being the sole causative agent. The pathological quarrel centers around nasal polypi. Grünwald[33] (Münich) and Lichtwitz[34] claim nasal polypi as a cause. Bosworth[32] found nasal polypi causative in six cases; Myles, in ten cases. Ziem[35] claims they are due to sinus suppuration. Woakes[35] claims they are due to necrosing ethmoiditis. Luc[35] denies the entity of necrosing ethmoiditis and claims polypi are due to folds in the region of middle turbinate which favor edematous distension. Zuckekandl[36] claims extension of rhinitis to antrum as cause. E. Frankel[37] of Hamburg regards general diseases as pneumonia, measles, scarlet fever, diphtheria, cerebrospinal meningitis and acute peritonitis as causative. Wagner[38] gives one case unmistakably due to lead-poisoning.

It is impossible here further to consider the pathology in that class of chronic cases which Jeanty[39] described under the name of latent empyemata further than to state that they have but one characteristic—hypersecretion, continuous or intermittent, odorless or fetid; and I would like to note in closing the statement of Fletcher,[40] who is both a dentist and a surgeon, that he treated one case of empyema in which the teeth were made pulpless by the disease of the antrum. This, he thinks, is probably more common than the reverse, since many teeth have roots perforating into the antrum.

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THE MISUSE OF GLASSES.[1]

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ON January 23d I examined the following case: A young man, twenty-eight years of age, healthy and strong, living in a small country town, could not read or write much for two months because soon after he began his eyes ached. He never had any headache and during school life his eyes never caused him any trouble. He remembered he had a cold shortly before the present trouble began. An oculist had prescribed glasses ($+1$D.) which he had been wearing these two months, but without any relief.

The examination showed orthophoria, normal fundi; and under homatropine V. 20/15 with $+.75$D. The retrotarsal folds of the upper lids were very red and slightly swollen. It was a plain case of conjunctivitis and a few applications of protargol (5 per cent.) to the retrotarsal folds, followed by daily instillations of a solution of boric acid (2 per cent.) and alum ($1/5$ per cent.) relieved the patient within two weeks, so that he could read again with perfect comfort for hours, though on my advice he laid aside his glasses directly after the first visit.

This is one instance of many in which the discomfort caused by conjunctivitis is mistaken for asthenopia and superfluous and useless glasses are inflicted upon the patient. An unprejudiced mind finds it difficult to understand how in this case an oculist could have pinned his faith upon the curative power of lenses when the whole history of the patient and the findings of the examination presented no evidence of eye strain. The patient never had suffered from headache in his life and had not experienced the slightest eye trouble while in school. These facts, I think, are of the greatest significance; for the great demands our schools put upon the vital forces of a child, together with the greater susceptibility of the nervous system of the growing organism, render the period of adolescence an especially favorable field for the display of the disturbing effects of ametropia upon the nervous system. Slight degrees of ametropia are a prolific source of headaches during this critical period in life; and we have frequent occasion to correct slight degrees of ametropia for the relief of asthenopic symptoms in school children. But many of these children after leaving school, if in perfect health, can discontinue the use of their glasses without suffering any inconvenience or discomfort, though their refraction errors have remained unchanged. This only goes to prove that the nerve forces of a normal young adult are abundantly able to meet the special demands of moderate degrees of ametropia without the least disturbance of their equilibrium.

Whenever, therefore, a healthy young adult complains of discomfort in using his eyes, and upon searching inquiry no evidence can be obtained that during school life he had suffered from eye pains or headaches, I think we should not accept an existing slight ametropia as the cause of his discomfort unless the most scrutinizing examination fails to detect any other local or general condition which might account for the apparent asthenopia. While I do not, for a moment, countenance the practice in vogue in many large dispensaries, especially in Europe, where patient after patient with aching eyes is dismissed after a casual examination as a case of conjunctivitis because the eyes are red and watery, when a careful examination of refraction would show that glasses are needed, I maintain that in many instances, like that of the case I first mentioned, glasses are prescribed when the patient's complaints are not caused by the existing ametropia but are due to unnoticed pathologic conditions of the conjunctiva. In making this statement I do not intend to cast any reflection upon the carefulness and ability of the attending oculist. I know my confrères are as painstaking in their examinations and as able as I am to tell conjunctival changes when they see them, and if, under certain conditions, I see them where they do not, it is not because they are less careful in their examination or less competent, but because we pursue different methods in the examination of the lids.

The prevailing method of examining the conjunctiva is first to expose the conjunctiva of the lower lid by drawing it down and away from the eyeball and then to evert the upper lid to inspect its conjunctival surface. If the conjunctiva thus exposed appears normal, the examiner comes to the conclusion that, nothing being wrong with the lids, the discomfort of the patient in near work must be due to the present error of refraction and that glasses must be prescribed. But does the simple eversion of the upper lid expose the whole expanse of conjunctiva? Or does it not conceal from our view the retrotarsal fold? And is not this fold sometimes the seat of marked pathologic changes while the palpebral conjunctiva may present a normal condition? The examination of the lids, therefore, cannot be said to be complete unless it includes the inspection of the retrotarsal folds of the upper lids; and they can be exposed to our view very easily by the following procedure: While the free border of the everted upper lid is firmly pressed by the thumb or index finger of the left hand against the supraorbital margin, the forefinger of the right hand placed upon the lower lid pushes the latter upward until it pretty well covers the cornea, when a gentle but steady pressure is made upon the globe as if to push it backward into the orbit; a slight back pressure of this kind is sufficient to make the retrotarsal fold come down from behind the everted lid. The whole manipulation is easy and gentle, harmless and painless, and can safely be used except in cases of deep and extensive corneal ulcers. I have tested its practical value in a great many cases, but hardly ever with more telling effect than in the following instance: About ten years ago a physician who was taking postgraduate courses in this city consulted me about his eyes. He had been seriously handicapped in his studies because he could not read up at night about what he had seen in the clinics during the day, as his eyes began to ache and his lids to droop after reading half an hour. He had consulted the professor of his school, who first prescribed reading glasses for a slight hypermetropia; and when these glasses (+1 D.) failed to bring the expected relief, he advised an operation for ptosis. It was in regard to the advisability of this operation that the doctor wished to obtain my opinion. When I examined the lids in the usual way the visible conjunctiva showed nothing abnormal; but my back pressure method at once revealed the retrotarsal folds thickly studded with follicular bodies. I, of course, had to advise against the proposed operation, and after the follicles had been removed by expression and the eyes had been treated with boric acid for ten days, the doctor could take up his studies and enjoy reading for hours with comfort, though he did not use his glasses. He assured me the other oculist had repeatedly everted the lids for examination and he wondered why he did not see the follicular condition of the folds.

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[1] Address delivered at the Seventh Annual Meeting of the Western Ophthalmologic and Otolaryngologic Association, Chicago, April 11, 1902.

You will now understand why he failed; you will also fully appreciate the force of my advice that in healthy young adults, especially if they have not suffered from asthenopic complaints during school life, we should always make a most searching examination of the conjunctiva before we suspect a slight refraction error as the cause of the patient's complaints; because failure of detecting present pathologic conditions of the conjunctiva leads to misunderstanding the etiology of the complaints and to prescribing glasses which are of no benefit to the patient and therefore superfluous.

Another class of patients who are not infrequently the victims of superfluous glasses are the sufferers of blepharitis. This inflammation of the lid margins, no matter how slight, is always attended by more or less hyperemia of the conjunctiva, and owing to this hyperemia blepharitic eyes are exceedingly sensitive and irritable, easily disposed to become red, watery and painful. These symptoms are particularly likely to develop during prolonged near work, so that blepharitic persons applying themselves to close work (bookkeepers, stenographers, students, seamstresses) are usually complaining of blurring of vision, painful eyes, and often even of headache. In many of these cases the scales along the lid borders are like fine dust and easily overlooked; the patient's complaints are taken for accommodative asthenopia and treated with glasses. Now, if such persons have faithfully used their glasses for a year or two without benefit; if then they are relieved of their complaints in a week or two by the proper treatment of the blepharitis and thereafter continue their work with perfect comfort though they do not use glasses, we are forced to the conclusion that the glasses were unnecessary. No other conclusion seems to me permissible in cases like these:

Case I.—January 21, 1900. Mr. J. F. E., twenty-five years old, bookkeeper for four years; can work over his book several hours in the morning with comparative comfort; toward noon, however, his eyes get red, watery and burning and in the afternoon a dull headache often compels him to interrupt his work. During the past year he has been treated with various eye waters and has worn glasses (R.E.+.50 cyl. ax. 100; L.E.+.25 cyl. ax. 70), but without any benefit. Lid edges slightly red and covered with fine scales like dust. R.E. 20/15 with +.50 cyl. ax. 180; L.E. 20/15 blurred by +25 sph. or cyl. Lids were treated with ichthyol ointment; glasses discarded. January 31st noticed improvement after two treatments; lids now well and he can do a full day's work without the slightest inconvenience.

Case II.—Miss C., nineteen years old, came to me last November. For four or five years eyes smarting, burning and watering. During the past two years wearing glasses (.25 cyl. ax. .90); nothing was ever done to her lids. Lid edges very red and thickly coated by soft epidermis scales. Under homatropine each eye V. 20/15 with + .25 cyl. ax. 90. Glasses were discarded; lids treated with nitrate of silver and ichthyol ointment, and in two weeks the blepharitis was cured and she could resume her work as dressmaker without further inconvenience.

In the second case the blepharitis was so marked that it could not have been overlooked by the attending oculist, and the fact that he paid no attention to it makes me suspect he believed in the false doctrine that refraction errors are the cause of blepharitis and their correction by glasses cures the lid trouble.

The relation of ametropia to blepharitis was first brought to our notice by Dr. Roosa of New York, in a very interesting paper read before the International Ophthalmological Congress in New York in 1876. He summed up his observations in these sentences: "Ametropia seems to be the condition of most eyes affected with blepharitis ciliaris. Hypermetropia is the error of refraction most frequently associated with blepharitis ciliaris and when blepharitis is associated with errors of refraction the cure of the edge of the lid is very much facilitated by and sometimes depends upon the correction of the ametropia."

You will observe, Roosa claimed neither that ametropia causes blepharitis nor that correcting glasses alone would cure it. What he maintained was that an existing blepharitis (like an existing conjunctivitis) may be aggravated and our treatment may be interfered with by the adverse influence of existing ametropia. The practical conclusion to be drawn from these observations is that the refraction of blepharitic patients should always be examined, and in refractory cases the ametropia should be corrected because it is very probable that in such cases eye strain frustrates our therapeutic efforts, and that the removal of this obnoxious influence will greatly aid the local treatment of the lids.

Dr. Keyser, however, writing on the same subject one year after Roosa, expressed the belief that ametropia was in many if not in all cases, the direct cause of blepharitis, and although Roosa's report showed that in the great majority of his cases the hypermetropia was of a low degree (one dioptry and less) we find in one of the most widely circulated modern text-books this statement: "The usual presence of considerable degrees of ametropia has led to the belief that this causes blepharitis (Roosa)." And this statement is followed by the advice that in all cases the refraction of the eye should be ascertained and any anomalous condition corrected by suitable glasses. Thus the impression is created that the chief, if not the only service to be rendered to blepharitic patients is the prescription of glasses, and as with our present tests we can easily find an ametropia of a quarter or half dioptry in almost any eye, physicians will always find an excuse for prescribing glasses to blepharitic patients; but if they keep track of these patients they will also find these weak glasses usually of no value because the additional accommodative work imposed upon the eyes by these low grades of ametropia is too trifling to create so much local disturbance, as is manifested by the inflammation of the lid margins.

I am not of those who consider the correction of low degrees of ametropia superfluous under all circumstances. On the contrary, I have long ago convinced myself that weak lenses have their sphere of usefulness, and in 1894 wrote a paper in their defense, from which I beg to quote the following passage clearly defining my position: "In the sight of these clinical proofs, it must be conceded that these weak cylinders are not superfluous glasses; that their therapeutic value is not mythical, but real; and that the oculist will render his patients a great service by prescribing these weak glasses wherever in his judgment he has reason to believe that the existing low degree of ametropia is the source of the patient's distress.

"We must not forget that the eye is the most successful in correcting by accommodative efforts the optical disturbances produced by slight degrees of hypermetropia or astigmatism, while in the higher degrees of these refractive errors it does not succeed, and therefore abandons the efforts. The moderate degrees, therefore, are the prevailing errors of refraction found in patients complaining of the symptoms of eye-strain.

"The degree of ametropia does not constitute the principal condition in the production of distressing symptoms, and experience does not sustain the statement that hypermetropia or astigmatism less than 0.75 D. seldom causes discomfort or headaches. The state of health, the condition of the nervous system, the occupation are very important factors, and frequently account for the fact that in many persons a slight hypermetropia or astigmatism causes great distress, while other persons never experience the slightest discomfort from the same ametropia in kind and degree, notwithstanding steady use of the eyes.

"Many eyes can endure a great amount of strain with impunity, while other eyes are so constituted that their powers of endurance are quickly exhausted. One person may need glasses for the correction of a small amount of ametropia, while in another person the correction of a much higher degree is unnecessary and glasses would be superfluous. We can not draw the line at a certain amount of ametropia; but should correct it, no matter how slight in degree, whenever it leads to disturbances for which eye strain constitutes a frequent cause."

To be sure, I am not prejudiced at all against weak lenses; I do not oppose the correction of ametropia because it is of an insignificant degree; but I do object to the indiscriminate prescribing of glasses. Glasses are no ornament; they do not improve the personal appearance or the facial expression; they are a nuisance at best and, therefore, should not be inflicted upon patients unless we have good and sufficient reason to believe their complaints are caused by the existing ametropia.

Refraction work has become a very prominent and important part of our practice; it is done with more care and greater accuracy in this country than anywhere in the world; and has achieved many brilliant and often unlooked-for triumphs. But dazzled by these brilliant achievements, some oculists seem to have gone refraction-mad; they attribute every discomfort in the use of the eyes to eye-strain; they fairly hunt for refraction errors and imagine they are doing scientific work if they prescribe glasses for any degree of ametropia they can detect. This one-sided tendency may sometimes lead to absurd consequences. I will illustrate by the following two instances:

Case I.—In January, a woman from Iowa, forty-four years old, consulted me on account of asthenopia. For more than ten years she had been unable to read because her eyes began to ache, after a short attempt. She was a confirmed neurasthenic; her eyes showed no disease; V. of R.E. 20/200, with — 4 cyl. ax. 15 20/70; L.E. 20/20; with + 1.50 smallest print very distinct; but after reading fifteen minutes pain compelled her to stop, even if the right eye had been closed all the time. This woman had been constantly wearing glasses (R.E. — 5 cyl. ax. 180; L.E. + .50 D.) for the past ten years which were given her by an experienced oculist in this city. Now, was it reasonable to expect any good result from the correction of the anisometropy in this case? The sight of the uncorrected right eye is so poor that the woman depends for seeing entirely on her left eye, and the kind and degree of the asthenopia certainly make it impossible to better the vision by any spontaneous effort of the ciliary muscles. Hence eye strain is evidently not the cause of the woman's trouble and therefore the correction of the astigmatismus of the R.E. of no use. But suppose the correction would make the vision of the R.E. fairly good (20/40 or 20/30), would it be likely to relieve her trouble? I think not; on the contrary, I believe it would increase her misery, by adding all the distress of hyperphoria to her old troubles. For the concave cylinder with horizontal axis acts like a vertical prism as soon as the visual line passes below or above the plane of the cylinder axis; and Dr. Jackson showed (*Ophthalmic Record,* Jan., 1902) that the prismatic effect of a 4 D. lens amounts to 1 degree for every 2.3 mm. decentration. For obvious reasons the line of vision can not remain in the plane of the cylinder axis in all the acts of looking; in reading, for instance, it will necessarily pass 2, 3, or 4 mm. below this line. And as this is equivalent to decentering the cylinder, it is clear the — 4 cyl. would necessarily cause a distressing vertical diplopia.

Case II.—A gentleman from Michigan, forty-two years old, has tried for twenty years to obtain relief from headaches and eye pains. He has had various glasses, the last pair (R.E. —1.50 cyl. ax. 180; L.E. + 1.25 cyl. ax. 180.) made him so dizzy and nervous that he could not wear them five minutes. I found R.E. V. 20/30 with —4—1.50 cyl. ax. 180; L. E. V. 20/20 with 50+ 1.25 cyl. ax. 180. But with these compound lenses as well as with the cylinders alone he had vertical diplopia, the images separating perceptibly under the slightest movement of the eyes upward or downward. When a red glass was put before the right eye, and the patient looked down, the red image was the upper one; and when he looked up, the red image was the lower one. We can easily account for these phenomena; for the lower half of the concave cylinder of the right eye acted like a prism base down, and its upper half like a prism base up; while the lower half of the convex cylinder of the left eye acted like a prism base up, and the upper half like a prism base down. Hence, the prismatic effect of both cylinders acting in opposite directions increased the vertical displacement of the images; and it was a physical impossibility for the patient to wear glasses which corrected in part or in whole the refraction errors of both eyes; and it showed a lack of good common sense to prescribe such glasses.

It was Huxley, I believe, who once said, "Science is nothing but trained and organized common sense." This definition, I think, applies with particular force to a practical science like ours. A good dose of common sense should always guide us in our work; it will save us from becoming dogmatic and one-sided; it will make us treat our patients not as mere scientific problems, but as human beings anxious to be relieved of their troubles; it will make us cast theories to the winds and consider only real conditions; and among other things it will sometimes, perhaps many times, guard against the misuse of glasses.

THE ETIOLOGY OF TYPHOID FEVER.[1]

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THE consideration of the etiology of typhoid fever is so inseparably connected with the history of the disease itself that the presentation of the former imperatively demands a résumé of the latter. Of course, if we deal with the specific factor alone, the Eberth-Gaffky bacillus, a few words will suffice to describe it and its biological relations, but it seems necessary to a broader understanding of the disease to study the environmental influences which serve as predisponents, also the elements which lead ultimately to the recognition of its bacterial origin.

A disease which we now know as typhoid fever can be recognized in the writings of many observers even as remote as Hippocrates. It is not until the seventeenth century, however, that we have any autopsy records. They serve conclusively to prove the preceding statement. Spigelius, in the early part of the seventeenth century, described a fever characterized clinically by diarrhea, often bloody stools, delirium or hebetude, abdominal pain, absence of crises and occasional relapse, accompanied by inflammation, and sometimes by sloughing fôci and gangrene of the small bowel. In the middle of the same century Willis described the bowel lesion as an internal eruption of variola. He evidently met with a case or cases in which the solitary follicles were specially involved, the so-called "forme pustuleuse" of Cruveilhier. He also called attention to what he regarded as two types of the fever, one, the febris pestilens, contagious as its name implies; the second, less contagious, having a longer course and terminating more slowly.

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Sydenham in addition noted the tendency to diarrhea and epistaxis and Hoffman of Halle described the eruption. Morgagni, in the eighteenth century, noted that perforation of the bowel might occur and directed attention to the involvement of the spleen and mesenteric glands. Thus far, however, considerable confusion existed in the classification of fevers. No one had associated the bowel lesion with any particular type, nor were the contagious and non-contagious fevers considered independently, though we have seen this latter foreshadowed, notably by Willis.

It was in France in 1804 that Prost first proved that one of the fevers was regularly accompanied by a bowel infection, though the dominant teaching of Broussais at that time, that all fevers had as their chief feature a gastro-enteritis, prevented the general acceptation of that finding. In 1813, however, Petit and Serres pointed out that certain cases, recognizable clinically, were accompanied by involvement of the lower part of the small bowel. They regarded the disease as a specific one, probably due to some special poison. It was named by them "enteromesenteric fever."

In 1823 Bretonneau observed that in these cases it was the lymph elements of the bowels that were involved rather than the mucous membrane, and he proposed the name dothiénentérite. Up to this time the disease had been included in the designation "typhus fever," a very ancient term, comprising all fevers in which more or less clouding of the cerebral functions was a predominant feature; but occasionally, from the time of Willis, various observers had noted marked differences in the contagiousness of the fevers, though it was not until 1836 that Gerhard and Pennock succeeded in separating typhoid fever from typhus fever. I believe that we are indebted to the French for the name "typhoid fever." Gerhard had spent some time in Paris under Louis, where he had had the opportunity of studying typhoid. On his return to Philadelphia he witnessed an epidemic of typhus fever. This led to the paper on the difference between typhus and dothienteritis (or typhoid), though many years elapsed before its general acceptance. Indeed, as late as 1870 we find in many textbooks of that time an inclination to regard the two conditions as varieties of a single disease, and no very settled notion existed as to the degree of contagiousness of typhoid in particular, though it was noted that typhus was prone to occur in cities, on shipboard, in institutions, or, in short, wherever opportunity for close communion existed, while typhoid was more frequent in villages and country places, a fact soon ascribed to the circumstance that in cities a better drainage system prevailed.

Prior to the discovery of the typhoid bacillus all sorts of conditions were alleged to cause the disease, cold, filth, decomposition, foul air, seasonal changes and mental and physical strain. Murchison, in his book on the continued fevers of Great Britain, attempts to prove that enteric fever is due to sewer emanations. He further thought the disease to be due to decomposition of fecal matter, and believed that it took origin therein, outside the body and independent of any individual. This he termed the "pythogenic theory." Buhl and Pettenkofer propounded the "ground-water theory," by which it was supposed that some poison, the exact nature of which was unknown, underwent a sort of ripening process in the subsoil air, and that when the ground water was low, opportunity existed for this ripening and for the escape of the poison into the air, whence it was supposed to be inhaled, or that it contaminated food and drink. Hence, when the ground water was low, typhoid was supposed to be prevalent and *vice versa.* This theory held sway for many years but finally succumbed, for as was abundantly proved, neither scavengers nor workers in sewers were any more liable to the disease than were other laborers, proving that something more than foul air was responsible for the origin of the malady. It was in 1871 that Recklinghausen first called attention to the presence of micro-organisms in the organs of individuals who had died of typhoid fever. Eberth, however, in 1880, was the first to prove that a bacillus stood in a direct etiological relation with the disease, and later Gaffky succeeded in growing it in pure culture, studied it experimentally in animals, and succeeded in definitely establishing its pathogenicity. From that time to the present there have been very few dissenters.

Roux claimed to have established the identity of the typhoid and colon bacilli, but that has long since been exploded, although it still must be admitted that in mixed cultures, at least, their separation is not always simple.

The typhoid bacillus is a slender, rod-shaped, motile organism, provided with numerous flagella by which it is enabled to maintain its motility. It has no spores. It grows well on a variety of media at room temperature, but most rapidly at body temperature (37° C.). It is occasionally found in water, milk, butter, oysters, vegetables, fruits, or in soil, but as far as we know at present only when these have been contaminated directly or indirectly by typhoid dejections. It can more often be traced by its effects than by the actual finding of the germ, however. If we need any confirmation to-day of the fact that sewage contamination alone is unable to beget typhoid fever, it is abundantly furnished by the experience of Curschmann, who cites an epidemic occurring in Berlin in the early seventies, before the present water system had been introduced. About a thousand people living in a crowded manner drew their household water from a common well known to be contaminated with sewage, without the development of a single case of typhoid, until one was brought into their midst. Shortly after, numerous members of the community served by this well fell victims. The celebrated epidemic occurring in Plymouth, Pa., in 1885, in which 1,200 cases of typhoid fever developed within a short time, offers further proof. During the early part of the year a man had had typhoid fever. He resided in a cottage near a stream which supplied a certain part of the town with water. His evacuations were thrown on the frozen ground; in the spring a thaw and heavy rain doubtless washed much of the material directly into the water and shortly after the epidemic began. These and many other instances only serve to show that the all-important factor is the bacillus, and that whatever is contaminated by it may serve to induce the disease.

We must consider, then, the means by which this is effected, *i.e.*, the agents concerned in carrying and spreading the infection. Of those previously mentioned, water is the most important. The manner in which the contaminated water is introduced into the individual is so varied as to defy a detailed description. Not only directly, as drinking or wash water, or when added to wine, whisky or other beverages; but indirectly, as in cleaning milk-pails, vegetables, fruits, etc. Fortunately, many conditions contribute to make the water a none-too-favorable medium for the bacillus—for instance, direct sunlight, various water bacteria and the presence of putrefactive organisms in great numbers. Running water, too, is less favorable than still water. The contamination of the water may result directly from the discharges of a typhoid patient or through sewage contamination, or as a result of washing clothing or other infected material in it. We have already seen the baneful influence of contaminated water. Just one more illustration.

Prior to 1893 the city of Hamburg drew its water-supply directly from the Elbe. From 1884 to 1893 there was an average of 2,580 typhoid cases per annum, *i.e.*, a morbidity of 5.4 per thousand inhabitants. Of these, the annual death-rate averaged 213, equal to .41 per thousand. In 1887, the worst year of all, there were 6,543 cases, a morbidity of 13.26 per thousand inhabitants, of whom 446 died, a rate of .90 per thousand. In 1893 the water intake was removed considerably up stream and a good filtration plant was installed. At once we see a remarkable change. In 1894 and 1895, there were 462 and 597 cases respectively, with a mortality of but .06 and .09 per thousand, and of these about one-tenth developed on ships in the harbor, presumably obtaining their wash water at least from the river.

Flügge states that typhoid bacilli usually disappear from water in about two weeks, but under favorable conditions they may persist much longer. Observations in this respect differ widely, but it is generally conceded that though they may maintain their vitality for some time, they multiply with difficulty, if at all.

Milk becomes infectious only when contaminated by infected water, by dirty vessels, or by hands of some one engaged in handling it. Both fresh and sterilized milk afford an admirable culture medium for the typhoid bacillus, and, as it causes no change perceptible to the unaided observer, it is at times a very dangerous medium, as numerous widespread epidemics testify. Heim found that the typhoid bacillus is capable of living in milk for about thirty-five days, in butter twenty-one days and in cheese three days. Tea and coffee do not exercise any deleterious influence on the bacillus; hence, when mixed with unboiled, contaminated water, they may serve as carriers of infection. So, too, according to Pick, with spirituous beverages and beer, in proportion to their alcoholic percentage. The stronger wines and liquors, of course, have a restraining influence. Even carbonated waters are not beyond suspicion if made from contaminated water. Hochstetter found the bacilli still living in them after some weeks.

Fruits, salads, celery and certain vegetables, if eaten raw may prove infectious either as a result of washing with infected water, or in consequence of direct infection from fecal contaminated soil used to foster their growth. Oysters have caused epidemics, their infection being traced to sewage.

It is questionable whether the air serves as a source of contagion, and if so whether the rare cases of pneumotyphus result from inspiring such air. It is conceivable, of course, that infection in consequence of contaminated air might occur through the mouth or the nose, but in such cases in all probability the poison would most likely be swallowed and give origin to the disease in the ordinary way by the alimentary tract. The typhoid organism, while not a hardy germ, is capable of maintaining its vitality under only moderately favorable conditions even for some months, as we have seen, though it does not necessarily multiply. One of the factors which works for its destruction is direct sunlight, which kills in a few hours. It is much more susceptible to warmth than to cold. Prudden kept some bacilli in ice at a temperature of—11° C. for three months without harming them, while a temperature of 135° F. for ten to fifteen minutes will kill them. They stand drying very well, maintaining their vitality several months. In the stools and urine their life depends chiefly on the reaction. In ammoniacal decomposition or in acid urine they do not live long.

The bacillus escapes from the patient chiefly in the stools or urine, particularly when the latter is albuminous. It is only occasionally found in the blood of typhoid patients, though always present, but as a source of infection that fluid need not be considered. It has been found, too, in the sweat, but there can be no doubt that previous soiling of the skin with discharges from the bowel had taken place. In by far the greater number of cases infection arises through fecal or urinary contamination. After an attack of typhoid fever, as long as several years in some cases, an abscess or periostitis or osteomyelitis may develop, from which it is possible to obtain the typhoid bacillus; such cases, however, are not likely to prove sources of contagion.

Having considered the specific factor, the bacillus, its source and mode of transmission, including some of the agents that work either for or against it, it only remains to note some of the predisposing causes of the disease. First, as to age and sex. Children and young adults are specially susceptible; the majority of cases occur between the fifteenth and the thirty-fifth years. At all ages males seem a little more prone to develop the disease than do females, partly because of their greater opportunities for exposure and partly because women are much less susceptible during pregnancy, the puerperium or lactation. Nursing children are practically immune. Infection of the fetus may occur. I was able on one occasion to obtain the typhoid bacillus from the spleen of a five-months fetus whose blood gave the Widal reaction. There was no intestinal lesion.

As to the social status, all walks of life are equally liable—high, low, rich and poor. Young well-nourished people seem especially susceptible. Mental and bodily strain predispose to it. Of course, if the disease be contracted, the previous health and surroundings of the individual have a great influence in the production of other cases and on the type of the disease in the affected person. As a rule, nosocomial outbreaks are an index of faulty technic in the management of hospital cases or of cases treated at home, as the case may be.

As to season, it has long been known that it chiefly occurs in the late summer and in the fall. Bartlett, in his work on fevers, says it was always spoken of in New England as the autumnal or fall fever. Before the nature of the disease was well understood and when less opportunity for ascertaining and overcoming the source of the infection therefore existed, it ran practically unchecked during certain seasons of the year. Statistics of the London Fever Hospital for a period of eighteen years just antedating the '70s show twice as many cases during the six months of fall and winter than during the spring and summer period. It is least prevalent in spring, has its maximum in September, October and November, and its minimum in May. Hot, dry summers are apt to be followed by more severe outbreaks in the fall than when a normal rainfall has preceded. Geographical factors do not enter into consideration, for the disease is universal. It occurs in all the zones and on mountains as well as in valleys. An outbreak has been reported as occurring on Mt. St. Bernard.

Insanitary conditions serve as predisponents only in so far as they offer a nidus for the growth and multiplication of the germ. The inhalation of sewer gas was thought to be capable of directly inducing disease, but Miguel, Haldane and others claim that sewer gas is free from germs of all kinds.

The previous existence of digestive disorders may invite an attack of typhoid fever, especially, it would seem, theoretically at least, if a deficiency of HCl exists; though Kitasato has shown that the typhoid bacillus has a fairly-marked power of resistance against acids. Seitz showed that it could live for three days in a mixture containing .03 per cent. of HCl. Strauss and Wurtz in a .09-per-cent. mixture of HCl for two to three hours.

Among the conditions which serve to bring about a certain degree of immunity is a previous attack of the disease; one attack confers more or less immunity, but not nearly to the same degree as do the other exanthemata. Among 1888 patients in the Hamburg epidemic of 1887, Curschmann saw fifty-four have a second attack, a percentage of 2.4. One patient had a third attack. Another peculiarity is that recurrent attacks are apt to be more severe than the primary one. This is often true of the relapses of an initial attack. Natural immunity exists to some extent among some of the Oriental races, notably the Arabs; and people more or less constantly exposed to the poison acquire immunity. It is manifestly difficult to determine whether or not an inborn immunity exists among our own people.

During the febrile stage of acute infectious diseases the patient is for the time being insusceptible to typhoid fever, though the resistance is lessened directly as the norm approaches. Certain chronic affections are said to offer some antagonism to typhoid fever, *viz.*, chronic tuberculosis, diabetes and malignant tumors. On the other hand, should typhoid fever attack an individual already tuberculous, but still in good condition, the phthisis is apt to advance rapidly.

In conclusion, then, let me repeat that the all-important factor is the bacillus, which for some unknown reason manifests a peculiar tendency to appear among us at regular intervals; that anything which affords an opportunity for its entrance into an individual predisposes to an attack of the fever; and that every case may serve as a source of infection to others, but unlike the other exanthemata, only by the use of contaminated food or drink, or water used for various household needs. Traube reported one case only of direct infection, differing from the above, which occurred in a hospital patient, into whose rectum a thermometer had been placed just after it had been used on a patient ill with typhoid fever.

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MEDICAL PROGRESS.

MEDICINE.

Trichocephalus Infection.—The presence of this parasite in man has often been considered as harmless. Becker (Deut. med. Woch., June 26, 1902) believes, however, that it may be the cause of severe and dangerous anemias. He has lately observed two cases marked by extreme reduction in the number of red cells, the specific gravity, and the hemoglobin-content, and morphological changes in the red corpuscles, micro-, macro-, and poikilocytes. Treatment directed against the anemia by iron and arsenic failed until a diagnosis of trichocephalus had been made. Enemas of benzine (five gtt. to the liter) seemed to rid the colon effectually of the worms. The author classifies the symptoms of the infection in three groups: (1) Gastro-intestinal. Colitis with ulceration, obstinate diarrhea, bloody stools, symptoms of peritonitis with vomiting and pain; (2) Nervous: Headaches, vertigo, aphonia, signs of meningitis, often fatal; (3) Circulatory: Anemia and its consequences, headaches, vertigo, palpitation, fatigue.

Typhoid Bacilli in the Urine.—That the Eberth bacillus may be found in the urine a long time after convalescence is established, is well illustrated by a case reported by Busing (Deut. med. Woch., June 19, 1902). The patient, a soldier, contracted typhoid in Tientsin, and on his return to Europe four months later the bacilli could still be constantly demonstrated in the urine, although he was apparently perfectly well. The danger from this source of infection and the necessity of constant urinary examinations during convalescence, is self-evident. The author has found that the bacillus readily disappears with daily administration of urotropin in full doses.

Coma Due to Acid Intoxication.—Deep coma has been observed in certain cases which were free from diabetes or other primary disease. It is now recognized that this form of intoxication is due to an excess of acids, the result of the decomposition of fats of either the food or tissues. These cases are rare and one which is unique in its clinical features is reported by D. L. Edsall (Phil. Med. Journ., June 28, 1902). The main features were as follows: A man, in fairly good health was suddenly overcome by vertigo followed by prolonged coma, lasting ten hours. Alkaline transfusions were given. He exhibited the symptoms and urinary signs of acid intoxication. He recovered rapidly and remained well. The signs of diabetes were absent at all times. The previous history only revealed comparatively slight gastro-intestinal disturbances. The author has found no records of a case in which the signs of intoxication appeared so rapidly and were of such great severity and in which there was an absence of prolonged gastro-intestinal disturbance. Recovery taking place within a few hours is also remarkable, without subsequent symptoms. Treatment consisted of blood-letting (fourteen oz.) and intravenous infusion of a 3 per cent. solution of sodium bicarbonate, about five pints, at intervals. Attention is called to the necessity of a proper recognition of this condition and the value of this treatment in non-diabetic acid intoxication.

Antistreptococcus Serum in Rheumatism.—In reporting a case of acute articular rheumatism with pyemic temperature treated with this serum, R. J. Chipman (Phil. Med. Journ., June 28, 1902) states that he has found no other record of its use. The patient presented characteristic symptoms with successive involvement of the wrists, ankles, knees and small joints. In addition there were almost daily chills with excessive rise of temperature with marked prostration and apparently profound septicemia. Successive injections of serum were given, 10 cc. daily, with remission of symptoms on the first day and rapid subsequent improvement. The usual anti-rheumatic measures had not met with any response and a lethal ending seemed imminent.

Suspension and Corsets in Chronic Meningomyelitis.—The remarkable results of suspension as a part of the treatment of tabes dorsalis have suggested to Personali of Geneva (La sem méd., 1902, No. 24) the propriety of applying the same technic in treating chronic meningomyelitis with the adjunct of plaster jackets, which have recently been so highly praised as therapeutic measures against locomotor ataxia and traumatic neurasthenia of spinal type. The author expects suspension to rupture all adhesions between the meninges and their adnexa and to reestablish a sufficient blood-flow on the one hand, and on the other hand, the immobilization in the jacket to maintain the conditions of maximum extension and of favorable circulation and thus to insure all the good effects of the suspension. He begins with daily séances of suspension, the first of which lasts only one minute; the subsequent ones increase in duration until after four or five days they are four or five minutes long each. They then remain constant at this limit for the succeeding ten or twelve days. During the suspension, while the body is supposedly in complete extension, the plaster jacket is applied after Sayre's method, extending from the highest possible point of the axillas to the iliac crests. The first corset remains in place for three months, during which the subject must be kept in repose upon a bed altogether, or at least until the plaster has fully hardened. Defecation and other organic functions are carried out in this attitude. At the end of the third month the patient as a rule is for the first time allowed to sit up and then to walk. Then the first jacket is taken off, and after other suspensions the second is applied in the same manner and of the same kind as the first, but the patient is not obliged to remain in the horizontal position any longer. This stays in place for two months more and is then replaced by a simple system of linen bandages carefully applied, which continue in use for two months longer. The treatment is then considered complete. In addition to this mechanical method, chiefly protective in its results, it is necessary to remove possible causes of the disease such as alcoholic excesses and to prescribe active tonic measures. Of these he recommends most highly subcutaneous injections of cocadylate of soda. During the past ten years the author has treated sixteen cases in this manner, among which he obtained eight complete cures, at least from a clinical standpoint; four material improvements and four doubtful results because these patients did not complete the course of treatment. Of these two subsequently reappeared as failures. It is necessary to state that this method is useless against syphilitic manifestations. The earlier in the course of the other forms of the disease the treatment is inaugurated the better will be the results.

Tuberculous Pleuritis.—The importance of all forms of tuberculous inflammation renders each case as it appears in day-to-day practice of moment peculiarly to the patient himself and broadly to the community at large. Contributions to the more exact clinical understanding of any special manifestation are consequently of specially commanding interest and particularly when the form in question may be localized, the covering of an organ alone, like the pleura. If treatment can keep it so circumscribed, the advantages to the patient are evident. With these broad principles in view, L. Bard (La sem. méd., 1902, No. 24) discusses tuberculous pleurisy, first from the pathological and second from the clinical standpoint. As a classification according to pathology alone he recognizes three grand groups of cases: (1) Purely localized tuberculosis of the pleura; (2) Tuberculosis of the pleura proceeding from the immediate neighborhood, especially from the lungs, so that the pleural process is secondary and subordinate; (3) Tuberculosis of the pleura in association. Here the serosa of the lungs is affected entirely as a part of a generalized inflammation of many foci, concomitant or successive, conjugated or independent. More important practically are his varieties from the clinical point of view, which are based in a general way upon the foregoing classes, but more minutely distinguished. Under purely local forms he mentions acute localized tuberculosis of the pleura of superficial site, where the lesions, although essentially intrapleural, are truly in the false membranes themselves, or just within, or at the level of the endothelial layer. The symptoms are frank progress, cyclic evolution, freedom of the lung from involvement, absence of expectoration, signs of fluid especially about the apex, and other signs which fluid about the apex gives (*syndrome sus-liquidien*, of Pitres). Very important is the proof which after aspiration of the fluid the needle gives of normal mobility of the lung. His next clinical variety is acute, localized tuberculous pleurisy of deep site, in which the nodules are in the deepest layers of the pleura, in the subserous connective tissue, even upon the surface of the lung-cortex and into the intervals between its lobes and lobules. It presents, compared with the foregoing variety, less frank onset, more scanty fluid, irregular evolution, and various signs pointing more or less toward involvement of the lung in the process. The apices may escape or show signs of congestion; the process extends in the cortical layers with little tendency at this period of the disease to penetrate. The lung resists the compression a little, the upper layer of the effusion becomes the higher in level and more important, whence proceed variations in the stethoscopic signs: Souffle very near and clear, voice fremitus and sounds less abolished, broncho-egophony rather than pure egophony, and at times a few scattering fine râles. Aspiration shows less expansion of the lung. In a later stage, resolution is less complete, adhesions more solid and extensive, retraction of the parietes present and at the base evidence of a persistent lesion tending toward sclerosis interstitialis, and a pleuropneumonia more or less marked. If the process continue there appear at the final stage evidences of pulmonary tuberculosis of pleural origin—so-called postpleuritic. Under the class of tuberculosis of the pleura proceeding from the neighborhood, he mentions for completeness symptomatic pleurisy from the thoracic wall and peritoneum, and there discusses that from chronic pulmonary tuberculosis, which is rarely acute and presents no clinical difficulties. Symptomatic pleurisy of the onset of pulmonary tuberculosis is vastly a different clinical entity. Its chief feature is self-evident involvement of the lung at the first appearance of symptoms, or soon after it, and then steady progress therein, although the pleurisy may have subsided. It is needless to state that its early recognition is very important. His next group is really transitional to the third grand subdivision and comprises symptomatic pleurisy of an exacerbation of pulmonary tuberculosis. The final clinical group is of those cases where diagnosis is easy and where treatment gives exceptionally any result whatever. It comprises pleurisies in association with other manifest tuberculous foci, namely, with the pleuro-pulmonary, with generalized granulations and with wide-spread tuberculous inflammation of the other serous membranes. Each of these speaks for itself so frankly as to need only mention here. The treatment of these pleurisies is *par excellence* aspiration.

Diplococcal Bronchitis.—It has been usual to consider acute bronchitis as an inflammatory or vaso-motor phenomenon due to irritation or reflexly after exposure. P. W. WILLIAMS (Bristol Med. Chir. Journ., June, 1902) has observed many instances of localized bronchitis in which the sputum is crowded with diplococcus pneumoniæ and suggests that these micro-organisms are the essential causal factor in a large proportion of such cases. He finds that it tends to affect localized areas in one or more pulmonary lobes and usually runs a benign course. There is also a tendency to recurrent attacks to implicate the same area again and again.

The Anemic Type of Cancer of the Stomach.—Cases of gastric cancer are described in which there are no physical signs or any symptoms of gastric trouble, but where the marked cachexia is taken to be pernicious anemia. The anemia is not due to loss of blood, for there are no hemorrhages; nor is it due to inanition, for the digestive functions are fairly good. But the cachexia and malnutrition are generally rapid in their progress. The blood of such a case studied by P. MENETRIER and CH. AUBERTIN (Archives Générales de Médecine, June, 1902) showed 1,476,000 red cells and 9,300 leucocytes, and of the latter there were 49.44 per cent. of polynuclears, 42.22 mononuclears, and 8.33 lymphocytes. There were no nucleated red cells. The gastric juice after a test meal showed complete absence of hydrochloric acid, though all ordinary foods, even meat, had been well-borne. At no time were there any gastric symptoms, nor were the authors able to detect any dilatation of the stomach, any abdominal tumor or gland enlargement. One month after admission there was a single small coffee-ground vomit, and two weeks later death ensued. The postmortem showed an astonishing paleness of all the organs, even the heart, while the voluntary muscles retained their normal redness. A large ulcerated cancer surrounded the pylorus without occluding it. Careful histological examination showed almost complete destruction of the gastric glands, an interesting fact since the digestive functions were so well preserved. The pancreas was, however, hypertrophied, firm and red, and had probably assumed the gastric function of albuminoid digestion. The bone-marrow was in active proliferation, showing 63 per cent. of granular myelocytes, 21 polynuclear neutrophiles, 0.66 eosinophiles, 0.78 lymphocytes and many transition forms. There seemed to have been an attempt on the part of the hematopoietic organs to overcome the globule destruction which produced the anemia. Many of the cells of the tumor seemed to have a certain secretory activity, as shown by their containing droplets of clear liquid or vesicles large enough to push the nucleus to the periphery. The authors think that absorption of this abnormal secretion is what caused the anemia.

Transmission of a Pericardial Friction-sound.—One of the important diagnostic features of a pericardial friction sound is its localization, as, unlike an endocardial murmur, it is not transmitted by the blood-current. However, it has occasionally been noted that such sounds are heard over a considerable area, and E. DEVIC and J. DE TEYSSIER (Archives générales de Médecine, June 1902) report such a case in a nephritic. A rough, whining sound heard most loudly at the apex, extended to the right border of the sternum and to the base, and was audible in the axilla and posteriorly on the left side. Autopsy showed an abundant fibrinous pericardial exudate, with a greatly hypertrophied but not dilated heart. Eleven other cases have been found in the literature, in each of which the heart was greatly hypertrophied. It is not the loudness of the murmur that enables it to be heard, but its transmission through a sound-conducting medium; and in this case the conductor was probably the bony framework closely pr ssed by the hypertrophied heart.

Occurrence of Typhoid Bacilli in Urine.—The discovery of the typhoid bacillus has been of the greatest importance from a scientific and prophylactic point of view, yet for the early diagnosis little help has been offered. The Widal reaction, the bacteriological examination of the blood, the stools, and the roseola spots have been of great value in a large number of cases; yet it is particularly in typhoid that an early diagnosis is desired and for this these methods rarely help. J. JACOBI (Deutsch. Arch. f. klin. Med. Vol. 72, Nos. 5 and 6.) examined the urine of thirty-five patients for typhoid bacilli in the following manner:

In male patients the meatus was cleansed with sublimate and then surrounded with sterile cotton; the patient was then told to urinate into a sterile vessel and only in case of deep coma was a catheter employed. In females, on the contrary, the urine was always drawn off. After adding bouillon or gelatin, the mixture was placed in a thermostat and examined after 24 hours for typhoid bacilli by means of the usual methods, including the agglutination test. In the thirty-five cases the examination proved positive in 20 per cent., which is somewhat lower than that of previous records in which probably the colon bacillus was occasionally mistaken for the typhoid. Albumin was found to be present in most of the positive cases, which seems to show that the bacilli are excreted only if the kidneys are diseased, to some extent at least. In those rare cases where this is not so, it is possible that the bacilli form an embolus of the small vessels leading to a necrotic area into which they eventually migrate, and this may also explain bacteriuria developing during convalescence, with or without albuminuria. Generally no new subjective symptoms are added when bacteria appear in the urine unless a cystitis develops. Then there is a clouding objectively which differs from that caused by other insoluble matter by the peculiar shimmer obtained when a narrow cylinder of the urine is held up to the light. The earliest day of appearance was the eighth and the latest the twenty-second day of the disease, and generally a roseola was already present, no doubt since for both conditions the presence of bacilli in the blood is necessary. In most of the positive cases there was an abundant eruption, high temperature and generally more severe symptoms, and the Widal reaction was positive in all; nevertheless none were fatal. From a prognostic point of view bacteriuria seems to be of as little value for the early diagnosis of typhoid as the other measures. For but little reliance can be laid upon a test which is positive only in so small a percentage of cases and then only at a late date; but undoubtedly it may serve as a ready means for distinguishing certain cases of true typhoid from exanthematic typhoid. But from a prophylactic standpoint the lesson is so much more valuable, since few realize fully that the urine requires as careful a disinfection as does the fecal matter. The case of a nurse is mentioned who accidentally swallowed some typhoid urine and contracted the disease; there are similiar ones on record. There is no question that the excreted bacilli possess their full virulence, for they are actively motile and serve admirably for the agglutination test. Urotropin seems to act admirably as an internal disinfectant, but unfortunately there follows a renewed appearance of the germs if its administration is stopped.

Influence of Carcinoma on Gastric Digestion.—In many cases of gastric cancer there is an absence of hydrochloric acid in the stomach contents, but why this is so has long been a mooted question. The following points have to be considered according to C. P. Emerson (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 5 and 6). (1) Food may bind the acids. It is improbable that fats or carbohydrates possess this power, but for albumins it has undoubtedly been proven that a neutralization can take place and the albumoses and peptones which form during digestion are also active in this respect. Finally, the ash of most food is alkaline in reaction. (2) Substances may be secretes from the stomach which bind the acids. This seems likely, for if hydrochloric acid be introduced into a carcinomatous stomach known to be empty, the reaction will no longer be acid after a certain time. (3) Substances secreted from the neoplasm may be responsible for this. To decide this, the author studied the effect of carcinomatous tissue upon the acid in the process of artificial digestion. In comparing with a control experiment it was found that the acid disappeared more rapidly where a piece of tumor was present. If the tumor was heated to 80 or 100° F., before being added, less acid was neutralized, so that by heating probably a ferment was destroyed to which the peculiar action is due. Further experiments were then conducted to determine if in the carcinomatous stomach more bases form at the end of digestion to which the neutralization might also in part be due. And indeed it was found that digestion went much further here since more nitrogen was found belonging to products beyond the albumose stage. The final conclusions reached on the influence of carcinoma on gastric digestion are that in carcinomatous tissue there is present a ferment which can, in the incubator as well as in the human stomach, digest albumin and convert it into products simpler than albumoses. This ferment is also active in the presence of hydrochloric acid.

Phosphaturia.—In their study of that peculiar condition known as phosphaturia, F. Soetbeer and H. Krieger (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 5 and 6) found that the most turbid urine was generally voided between six and eleven in the morning, after the longest pause in feeding. The relation of phosphoric acid to lime, which normally is as 12:1 here was found to be from 1-2:1; in other words there was a marked increase of lime salts excreted. If the feeding was kept up during the night and so more phosphoric acid allowed to enter the system, the urine improved considerably, but the general condition of the patient became worse. The explanation probably is that in phosphaturia there is a saturation of the tissues with lime which cannot well be excreted when the kidneys are eliminating an undue amount of phosphoric acid.

Results of Infantile Syphilis.—The subsequent health of fifty-six cases of infantile syphilis, of which 13 were acquired and 43 inherited, was investigated in a statistical article by A. Martin (Münch. med. Woch., June 24, 1902). Taking the acquired cases first, it was found that two had died of pneumonia and diphtheria respectively; the remainder seemed to have had a normal bodily development and only one developed tertiary symptoms in the form of a gumma of the soft palate. Nervous diseases particularly did not occur. The male patients all were married and their children healthy, while most of the females had not borne any children; in those that had, the offspring was not morally or intellectually defective. The cases of hereditary lues were divided into early and late; of ten belonging to the former class, eight had died in early infancy of atelectasis of the lungs, pneumonia, lues and other diseases; one grew up to be a moral imbecile, and another is healthy, with two living children. Of nineteen cases belonging to the tardy class, five had died of various diseases and three had had severe syphilitic lesions. Only one of the surviving group was troubled with grave tertiary symptoms involving the nasopharynx and the ears, and in the rest, no peculiar disposition to diseases of the nervous system or the vessels could be discovered, nor was the appearance of puberty and general bodily development at all delayed. The mortality among the offspring, however, was slightly higher than normal.

Melanotic Carcinoma in an Infant.—With the rare occurrence of carcinoma in young infants, the case reported by G. Reimann (Prog. med. Woch., June 19, 1902), does not lack in interest. The child was born of a luetic mother, and at birth had many stigmata of inherited syphilis. During the first months of its life a number of small, bluish nodules developed in many different parts of the body, which were first looked upon as gummatous. When, however, an energetic treatment with mercurial inunctions did not improve the condition, the diagnosis was changed to telangiectatic fibroids. Six months after birth the skin became brownish and a severe diarrhea with fatal issue set in. The autopsy revealed a general carcinomatosis, with the primary tumors in the suprarenal. The microscopical examination showed the growths to be melanotic in nature.

Latent Brain Abscess Becoming Evident with Symptoms of Atropine Poisoning.—A laborer, five years before death, received an injury on the head which was followed by considerable shock from which he, however, soon recovered. After a long period of latency, E. AUFRECHT (Arch. f. klin. Med., vol. 72, Nos. 5 and 6) was called in to prescribe for a supposed bronchial asthma. After several doses of atropine, severe headache, twitchings, dilatation of the pupils and considerable confusion set in so that there was some doubt as to the diagnosis, especially since it seemed as if the prescription had been made ten times stronger than intended. The autopsy, however, revealed a large abscess in the left temporal region which had not caused any symptoms during the five years.

Embolism of Superior Mesenteric Artery.—An interesting case of embolism of the superior mesenteric artery which ended in a reestablishment of the circulation, is reported by E. AUFRECHT (Arch. f. klin. Med., Vol. 72, Nos. 5 and 6). In a girl eight years old, suffering from an uncompensated mitrol insufficiency there suddenly developed hematemesis and severe pain in the liver region where soon an indistinct resistance could be palpated. Later, the stools became mucoid and hemorrhagic. A cure of this complication is rare and was not so much due here to the therapeutic measure as probably to the incompleteness of the occlusion of the vessel.

A Measure for the Heart's Energy.—Marked circulatory disturbances, which become evident through dyspnea, edema, etc., clearly demonstrate that the heart is not doing its work properly. There are, however, many individuals suffering from anemia, neurasthenia and kindred diseases where the insufficiency does not manifest itself by such evident symptoms and where yet the heart is exhausted. As good criterion for the degree of this absence of reserve energy. G. GALLI (Münch. med. Woch., June 10-24, 1902) has found the splitting of the second pulmonic tone. In a number of apparently healthy persons examined this phenomenon was observed only in a few in the morning, but toward evening it could be detected in over one half. Children are generally more active and draw on their energy more freely, hence here the splitting can be heard more often than in those advanced in years. This fatigue symptom is most markedly seen in diseases of the heart muscle, in increased blood-pressure in the pulmonary vessel, in modified pulmonary traction and in nervous conditions and, according to its severity, three degrees may be distinguished. A frequent, concomitant sign is the pulsus paradoxus. The diagnostic and prognostic value of the splitting is evident, yet owing to its great delicacy, care must be exercised in correctly interpreting it and several examinations, preferably at different times of the day, are desirable. Where hypertrophy of the heart is easily detected it is not so important to search for the sign as in acute infectious diseases where there is not time for an increase of the size to develop and it is here where its great value is apparent to determine if the heart suffers unduly from the intoxication. It is then out of place to still further stimulate the weakened organ, and sedatives are more indicated with absolute rest and proper feeding. The proper auscultation during convalescence may obviate the occurrence of sudden cardiac failure so often noticed during this period.

PEDIATRICS.

Tetany and Myotonia in Infancy.—Belonging to the early period of infancy, according to C. HOCHSINGER (Rev. Mens des Maladies de l'Enfance, June, 1902), myotonia is a neurosis distinct from tetany and from the pseudo-tetanus of Escherich. The tetany of nurslings is to be regarded in the same way as that of adults. It is characterized by intermittent and tonic contractures, principally in the muscles of the hands and feet, accompanied by a hyperexcitability of the motor nerves and of the muscles. There is no loss of consciousness. The hyperexcitability is the essential condition of tetany. The most important symptom of this hyperexcitability, is the phenomenon of Chvostek, which is the sudden contraction obtained by striking branches of the facial nerve. This reaction is not obtained in myotonia. All the other symptoms of tetany must be subordinated to the hyperexcitability. In connection with tetany may also be mentioned Trousseau's symptom, which consists in the reproduction of the paroxysm at will by pressing on the affected part in the direction of its motor nerves or blood vessels. The so-called "phenomenon of the fist" in myotonia is the contraction of the fingers aroused by pressure on the nerves of the brachial plexus. This sign is seen only in infants of six to eight weeks of age. It is not dependent on a general hyperexcitability, but on the fact that in early infancy the inhibitory centers that preside over the reflexes are incompletely developed. True tetany of infants is a neuro-muscular affection, developed on a rachitic foundation exclusively. According to Kassowitz, the largest number of cases is found in the early spring months, which is also the case with rickets. Toward the end of summer tetany disappears completely. On the other hand, myotonia has nothing to do with rickets. Developed in the course of gastro-intestinal intoxication, it has no relation to any particular season, except in so far as it is related to the period of most serious intestinal disorders, toward the end of summer. The contractions of tetany are paroxysmal and intermittent, while those of myotonia are persistent, lasting sometimes for weeks at a time. In tetany the attacks come on suddenly; in myotonia, gradually. In the latter disease there is no mechanical or galvanic hyperexcitability of the muscles or nerves, and the facial symptom is not present. The laryngo-spasms, and the tonic and intermittent spasms of respiration, which frequently occur in tetany, are not found in myotonia. Tetany appears at a later period than myotonia, which is seen in the first few weeks of life. In tetany the contractions have a tendency to recurrence, while in myotonia this tendency is not present, the attack disappearing with the cause. The phosphorus treatment which has good results in the neuro-muscular affections of infancy, has no effect on the spasms of myotonia.

Milk Analysis in Infant Feeding.—All present methods of milk-modification assume that there is a fairly constant percentage of fat in a given number of ounces taken from the upper portion of a given quantity of cow's milk after the cream has risen. WENTWORTH (Boston Med. & Surg. Jour., July 3, 1902) has made a series of analyses which show that this assumption is not true for individual milk and that the percentage of fat in cow's milk varies very much. It was also noticed that the percentage of sugar was higher in the lower milk than in the cream and that the percentage of proteids was higher in the cream than in the lower milk. An examination of twenty-six specimens of "modified milk" from well-known establishments showed that all modifications were incorrect. The most constant error was in the low percentage of fat. The proteids were usually too high and the percentage of sugar varied in each direction. These errors were appreciable and amounted to from 20 to 25 per cent. of the total quantity specified in the formula. An obvious conclusion to be drawn is that within certain limits accurate percentages of the constituents of modified milk are not essential in the large proportion of cases, as many infants apparently thrive on these modifications whether prepared at home or elsewhere. The author believes that accurate modifications are most essential, however, in the early weeks of life. He thinks that in each case the fat should occasionally be determined and no cream used in which it is less than 10 per cent., as in such cases the proteids are always too high.

Self-abuse in Infancy.—Self-abuse is one of the most commonly cited cases of the nervous diseases of childhood, especially of epilepsy and insanity, says Jno. T. Winter (Amer. Jour. of Obstet. and Diseases of Women and Children, June, 1902). Precocious sexuality with masturbation must necessarily interfere with normal mental growth, and in such subjects we can look for loss of memory, delusional insanity, and hysterical instability. Often the habit is taught the child by the nurse in order that it may exhaust itself and go to sleep quietly. Many times the cause of the habit may be found in the condition of the parts themselves: sebaceous matter on the inside of the prepuce or hardened vernix in the vagina, inflammation of the kidneys, phimosis, seat-worms, and various other conditions causing local irritation and thus leading to manipulation of the parts. It is also thought that the practice may result from some form of brain disease or cerebral deficiency, as it is often found to exist in those suffering from some forms of insanity, and in idiocy. How shall the habit of self-pollution be corrected and prevented? Corporal punishment has no influence upon these children. Where there is no local cause, we can muffle the child's hands, or put them to bed in the spread eagle style. Not only the child, but its nurse also, should be watched. Circumcision should be done if there is an adherent prepuce. It has been suggested that the prepuce at the root of the glands may be pierced with an ordinary silver needle, the ends of which should be tied together, and thus make erection impossible.

The Venous Dystrophies of Hereditary Syphilis.—Certain cases of hereditary syphilis, according to E. Fournier (Rev. d'Hyg. et de Med. Infant., Vol. 1, No. 1), present venous dilatations in the form of large blue or violet-blue cords, on the head and in the region supplied by the tributaries of the external jugular vein. These venous dilatations have by certain authors been supposed to supply a sort of supplementary circulation outside of the skull, to aid the circulation of the brain rendered insufficient by hydrocephalus or tumor of the brain. Fournier believes that the latter causes are sometimes present, but in the majority of cases they are absent. An attempt has been made to explain these dilatations as the result of a malformation of the bone at the base of the skull; no anatomical observation, however, has yet confirmed this. Moreover, the varices diminish and finally disappear. Evidently they are to be attributed to a congenital feebleness of the walls of the veins. In infancy the greatest muscular development and output of energy are displayed in the case of the respiratory apparatus. The acts of sucking and of crying cause an arrest of the pulmonary circulation, with frequent stasis of blood. There is a reflex of blood into the large veins at the base of the heart. There are valves in the internal jugular and subclavian veins but none in the vena cava superior, while the external jugular is provided with insufficient valves. The absence and insufficiency of valves favor the reflex and stasis of blood in the latter veins and permit their distension during the frequently repeated acts of sucking and crying. Moreover this distension is more liable to occur in veins whose walls are congenitally feeble. With the growth of the child and the cessation of crying and sucking, the venous enlargements disappear. This is in marked contrast to the slow disappearance of venous enlargements in the adult.

OBSTETRICS AND GYNECOLOGY.

A Prophylactic Female Catheter.—A double catheter is the means by which it is sought to obviate the carrying of infection from the female urethra into the bladder by P. Rosenstein (C'blatt f. Gynäk., 1902, No. 22). The outer catheter consists of a 3 c.m.-long cylindrical urethral segment with a blunt conical point centrally perforated and of a long distal tube (the conducting tube) attached to the former by a collar which forms a flange beyond the surface of the urethral section. The inner catheter is a straight metal instrument of diameter to fit the conducting tube uniformly yet easily and of length to project beyond the tip of the outer catheter about 2 c.m., which will in most women represent its penetration into the bladder and hence avoid as a rule contact with the walls of that viscus, which is an important point the author thinks in avoiding catheter cystitis. The perforation in the tip of the outer catheter is of such a diameter as to permit the inner instrument to pass through without contact with the urethral secretions which would naturally tend to collect about the orifice of the outer catheter. The collar on the outer instrument will prevent a penetration of more than 3 c.m., the average length of the female urethra. In women with longer canals the inner tube must traverse the excess of length between that of the outer shield and the internal sphincter. The danger of infection from this cause is very small because the proximal third of the female urethra has been shown to be almost pus-free. Before publishing his paper, the author tested and proved the practical value and the clinical fitness of the instrument in Winter's gynecological clinic and trusts that it will be found to be the means of reducing the number of cystites caused by catheterization.

Typical Fibroma of the Vulva.—The actually remarkable rarity of this form of vulvar neoplasm renders a brief review desirable of a case reported by W. Thomass of Brandenburg (C'blatt f. Gynäk., 1902, No. 25). The seventeen-year-old nullipara, always in previous good health, began her menses two years previously and underwent them normally; noticed three months ago a small lump in the external genitals at first causing no inconvenience but later by growth demanded interference. Examination showed a tumor situated between the orifice of the urethra, the labium minus (still uninvaded) and the anterior wall of the vagina, of hen's-egg size, hard, oval, sessile, with two nodules projected to the front through a thick capsule easily differentiable from the surrounding soft parts. There was no vulvar or vaginal discharge. The mass was easily ablated with knife and scissors without damage to the urethra, which was separated from it by a very delicate lamella, and the cavity of its site closed with layer sutures. Histologically the growth was true fibroma. Literature is unfortunately not definite in its record of these tumors, but it is certain that typically they occur with extreme rarity. In his work on gynecology Veit cites twelve reports of them, but adds that they must be accepted cautiously because tumors of the round ligaments, elephantiasis, syphilitic deposits and the like must all be fully differentiated in the diagnosis.

The Dangers of Heavy Vaginal Specula.—In order to insure a wide and continuous exposure of the walls of the vagina for gynecological procedures it is often the rule to use specula with weighted ends as retractors. F. Griffith (La Sem. Méd., 1902, No. 24) has had occasion to see that this procedure is not always without dangers and disadvantages. He was called upon to do a curetting upon a twenty-five-year-old woman who had been the subject of a criminal abortion. He inserted a speculum weighing 760 grams and did the operation in perhaps a half-hour. All went well until perhaps the third day when a fetid discharge appeared and upon examination he found a sloughing mass on the posterior vaginal aspect whose outlines conformed exactly to those of the blade of the speculum. Peroxide of hydrogen treatment hastened a cure, which was complete in about three weeks. The accident is instructive, because it happened in a young, healthy patient, and might by having opened avenues of infection have led to fatal or permanently injurious results.

Primary Ovarian Gestation.—It is a curious coincidence that three of the four reported cases of primary ovarian pregnancy should have come from Leeds, England, says A. W. Mayo Robson (Journal of Obst. and Gynæc. of the Brit. Empire, July, 1902). The writer reports a case in which the pathologic findings show most conclusively that fecundations of the ovum took place within the ovary. Intraperitoneal hemorrhage was masked in three of the cases. It is not at all improbable that some of the blood cysts, or hematomas, not infrequently found in the ovaries, may be due to impregnation of an ovum within the ovary. In order to settle the question, it is important that all such cases when discovered should be carefully examined microscopically without delay in order to gain evidence of impregnation, although, in some cases, owing to the early death of the embryo, the subsequent changes will make identification difficult, and perhaps impossible.

THERAPEUTICS.

Atropine in Asthma.—The recent revival by Van Norden and Riegel of Trousseau's treatment of asthma with large and increasing doses of atropine furnished to G. Campanella (Gazz. degli Osped., June 22, 1902) the incentive for its trial hypodermatically in two asthmatic cases. The remedy, in the form of atropine sulphate, was administered once daily; .002 proving efficient in one case, and a milligram dose being necessary in the other. It is said to have successfully, and at once, cut short asthmatic paroxysm, and its daily use for six days overcame bronchial symptoms, and prevented recurrence of asthmatic crisis. Some general discomfort was experienced by the patients from the use of the drug, such as vertigo, tremor, etc., but in some way, these symptoms are believed to be modified by a largely vegetable diet.

Value of Sulphur Baths.—Upon what does the value of sulphur baths depend? is a question which has often been asked and answered, yet the solution is as difficult to-day as ever. Kullmann (Centralbl. f. a. ges. Therap., July, 1902) emphasizes the value of sulphur in two conditions, viz., superficial diseases of the skin and the deeper chronic affection of the fasciæ, joints and muscles. Yet baths alone have an equally sedative action. Experience has nevertheless shown that syphilitics improve more rapidly if they take their inunctions at a watering place where sulphur baths abound than at home, or in localities where the water is indifferent or contains iodine; and this fact demands explanation. It seems as if the suspended sulphur or the sulphuretted hydrogen creates a tolerance in the skin for chemical or mechanical irritation which increases absorption and prevents the development of furunculosis. At all events it is a well-known fact that baths can be kept up much longer in sulphur than in other waters. Other theories, such as the effect of the absorbed sulphur, or the osmotic effect upon the skin, are hardly tenable. It has been urged from many sides that sulphur and mercury are really incompatible since leading to the formation of insoluble sulphide of mercury, but it has since then been shown, that if this were rubbed into the skin it could produce mercurialism as well as the usual ointment. Much less can be said in favor of sulphur waters taken internally, and it is likely that they act no differently than other indifferent waters.

THERAPEUTIC HINTS.

A Unique Prescription.

℞ Ferri Lacti	gr. xxxii
Chinin Muriat.	gr. xvi
Mangan Dioxide	gr. xxxii
Dissolve in	
Ac. Nit. Mur. Pur.	♏ xxxii
adde	
Liq. Sedans P. D. & Co.	℥ii ʒv ♏xx
Liq. Hydrarg. Perchlor.	ʒiv ♏xv
Tr. Aloes	ʒiii ♏vii
F. Ext. Ergotæ	ʒii ♏xl
Tr. Cantharidis	ʒi ♏xxxvi
F. Ext. Cascara Sag.	℥i ♏xlvi
Liq. Arsenicalis	♏xxxiv
F. Ext. Nux Vom.	♏xxvi
F. Ext. Physostigmat.	♏xxi
Tr. Podophylli	♏xviii
F. Ext. Ipecac.	♏xi
F. Ext. Belladonnæ.	♏viii
Syrupus Simpl. q.s.	℥viii

M. S. ʒi twelve times a day.

Hay Fever.—

℞ Acidi trichloracetici	1	(♏xv)
Aquæ q.s. ad	100	(℥iij ʒij)

M. Sig: To be sniffed, injected or sprayed up the nostrils two or three times a day. Cures result in from two to eight days. —H. Krause.

The Morphine Habit.—The three chief remedies advised by Oscar Jennings are sodium bicarbonate, heart tonics, and hot-air baths. Bicycling is a useful adjunct. The management of the cases is very difficult, but Dr. Jennings is optimistic even in cases of long standing. —"The Cure of the Morphia Habit."

To Remove Pigmented Spots.—Wash the skin and apply little plaques of white precipitate plaster, leaving them on all night. During the day apply the following and let it dry on the skin:

℞ Amyli de Riz.		
Bism. oxidi aa. gm.	2.0	(ʒss)
Cretæ preparat	4.0	(ʒi)
Aquæ rosæ	6.0	(ʒiss)
Unguent	10.0	

If the spots are very rebellious, one may have recourse to Hebra's collodion containing 10 per cent. of corrosive sublimate.

—Unna, in Le Progrès Médical, May 24, 1902.

Vulvar Pruritus.—

℞ Sodii hyposulph	3.0	(gr. xlv.)
Adipis lanæ hydros.	30.0	(℥i)

Rub over the parts frequently or apply a ten-per-cent. solution of the hyposulphite.

—H. Guilhot, in Le Progrès Médical, May 24, 1902.

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DECORTICATION OF ORGANS.

The operative procedure recently introduced into surgery under the name of "decortication" has found already a variety of applications, and is destined, doubtless, to a far wider range of usefulness in the near future. Prof. James Israel has advocated its use in certain of the chronic diseases of the kidney—an opinion which has been heartily endorsed by some of the most experienced of American surgeons. In another form, indeed, though practically the same in scope and in intention, it forms the basis of Telma's, and of Morrison's operation for ascites.

All of these procedures are based upon the theory that destruction of the capsule of an organ, or injury to its surface, will result in the formation of fibroplastic adhesions to neighboring areas or surfaces, and that these adhesions, becoming vascularized, will come to constitute an important accessory channel of circulation for the organ involved. In this manner, disorder secondary to circulatory derangements in the kidney, liver, spleen, etc., may be alleviated, or perhaps removed.

Needless to say, the records of the surgeons, so far as they are now accessible upon this subject, are encouraging, not to say optimistic. Needless to say, also, the pendulum will surely swing back again in time, and criticism will not be lacking even from the surgeons themselves.

In the meanwhile, the *raison d'être* of the operation and its philosophy, are still largely matters of doubt and speculation. It is difficult to conceive that an organ of such size as the kidney, through which flows so large a proportion of the circulating blood, can be noticeably relieved by a few vascularized adhesions. It is somewhat easier, though still a strain on the imagination, to concede that the engorged veins of the great portal system may find outflow and drainage through the newly formed capillaries between parietal and visceral pleuræ. Doubtless these phenomena are possibilities, but they have not as yet been adequately demonstrated. A few autopsies, both upon successful and upon fatal cases, have been recorded, in which the information is vouchsafed that fresh adhesions had been formed, and that they showed evidence of vascularization. This, however, is very far from proving that therein lies the cause of the benefits which are claimed for the operation. Every pathologist is aware that old cases of cirrhosis frequently present far more complex and widespread adhesions of this kind than can ever result from their artificial stimulation, notwithstanding which the portal stasis and ascites stubbornly persist. Not only this, but all the natural channels of communication between the portal tributaries and those of the vena cava may undergo enormous hypertrophy and form huge bunches of varicosities, yet there is no visible change in the symptoms due to the obstruction in the liver. Thus it is that the question suggests itself whether there may not be some other factor, as yet undiscovered, in the favorable influence of the operations, just as the curative action of laparotomies in tuberculosis of the peritoneum is conceded, without being understood.

Recently, two French observers, Albarran and Bernard, have reported a series of experiments in decortication of the kidneys of a number of rabbits, and their results go far to discredit the theory of an accessory circulation. They found that the operation was quickly followed by regeneration of the fibrous capsule, which was evident as early as fifteen days afterwards. At the end of six months, the kidney was found to be enveloped in a newly formed capsule of very great density and firmness, which bound it to the neighboring body-wall. So far their results confirm those of the surgeons. The parenchyma of the organ, however, they found to be almost intact, with only slight and superficial lesions and adhesions. It seemed to them that the circulation of the kidney could be but very slightly, if at all, affected by any set of changes similar to those which they had been able experimentally to induce.

VERTIGO AND ITS SIGNIFICANCE.

FEW symptoms may bear a more various meaning than vertigo. While this disorder is associated with some of the most serious conditions in medicine, it may be no more than a sign of passing disturbance of cerebral circulation. For this very reason it is apt to be undervalued in its diagnostic significance, and scarcely anything is more important than for the practitioner to have a proper appreciation of it distinctly fixed in mind. It has been the custom to assume that many cases of vertigo are due to gastric disturbance. So experienced a clinical observer as Trousseau is mainly responsible for this idea. He described in his clear-cut way a very definite set of symptoms, the principal features being vertigo and the constantly associated phenomenon—a feeling of impending evil—that were due, as he considered, to a pathological condition in the stomach. Stomach vertigo has as a consequence become a commonplace in medicine. Many vertiginous feelings that have in reality a much more serious significance, have been since set down as stomachic in origin. As a matter of fact, while gastric disturbance may cause a certain passing dizziness, mainly due to the fact that the dilatation of the stomach with gas produces a mechanical interference with the heart action and consequently disturbs cerebral circulation, a serious attack of vertigo is probably never due to stomach conditions alone.

Specialists in gastric diseases are not agreed as to the specific form of gastric disturbance that may be responsible for so-called stomach vertigo. While most experts consider that secretory disturbances of the stomach form the underlying condition, there are not a few who with Boas of Berlin think that interference with the motor functions of the stomach are the true cause of the vertiginous symptoms. On the other hand there are many who do not hesitate to express the opinion that neither motor nor secretory disturbances of the stomach are of themselves sufficient to account for the vertigo sometimes called gastric. For many of the French school of medicine, as also for not a few thinking practitioners outside of France, the influence of some such additional etiological factor as the gastro-intestinal auto-intoxication described by Bouchard seems necessary for the satisfactory explanation of the occurrence of vertigo in conjunction with dyspepsia.

In a review of Trousseau's original cases of vertigo e stomacho Dr. Fisher, in the symposium on vertigo at the New York Academy of Medicine (see MEDICAL NEWS this week, page 330), showed that there was always a marked general neurotic condition present in all the patients and that at times the symptoms of vertigo manifested themselves before any signs of stomach trouble were noticed. It is well known how readily certain neurasthenic patients complain of such symptoms as vertigo and how easily even very slight suggestion will lead them to the visual hallucination of the rotary movement of objects within sight and the development of an impending sense of evil. Pseudo-angina pectoris is usually associated with nervous dyspepsia and not infrequently there are certain vertiginous feelings complained of. This affection is now commonly conceded to be a manifestation of the general nervous condition rather than directly due to the stomach disturbance, yet the presence of gastric symptoms in conjunction with pseudo-angina pectoris is almost unexceptional. It has often been noticed that forms of so-called gastric vertigo are associated with such highly neurotic conditions as agoraphobia, the well-known fear that comes over certain nervous persons when they find themselves in open squares or in market places; or akrophobia, the fear of being on high places, as on a bridge or in the gallery of a theater. These symptoms are a sure sign that the underlying nervous condition is of very great importance in the individual affected.

The forms of gastro-intestinal disturbance, with which vertigo may be associated, are so varied that it seems almost impossible to trace any specific causal connection between the conditions. It is not an unusual experience for patients to feel some symptoms of vertigo when a stomach tube is first passed. These symptoms disappear after a short time, and besides the passage of the stomach tube fails entirely after awhile to arouse the vertiginous reflex. The esophageal and gastric nerve endings become accustomed to the irritation set up by the foreign substance and react but very slightly. In nervous patients, however, the tendency to vertigo may never cease to recur and may prove a serious annoyance at every passage of the tube. There are other reflexes from the mucous membrane of the digestive tract that may prove similarly active. In extremely sensitive people the giving of a large enema may cause a feeling of vertigo. Leube has reported the case of a patient who suffered from vertigo every time rectal examination was made.

It would seem, then, that the term "stomach vertigo," in the sense that dyspepsia may of itself be an active factor in the production of vertigo, needs to be much more limited in its comprehension than has been heretofore considered necessary. Most of these cases are really nervous vertigo in patients who suffer also from some disturbance of their digestion. This may take almost any form and may be due to hypersecretion, or hyposecretion, or failure of gastric motility and may be accompanied by constipation or diarrhea. Successful treatment requires attention to the general nervous system as well as to the dyspeptic condition, and this latter is itself often dependent on the neurosis and will disappear with the amelioration of the neurasthenia. On the other hand there are severe forms of vertigo of important significance from a diagnostic standpoint whose indications are often unfortunately missed, or the realization of their meaning delayed, because of the prevailing impression that vertigo is not infrequently a symptom of functional gastro-intestinal disease. Some of these as Menière's disease, are not promising in their treatment so that a delay in recognition is not serious. It must be borne in mind, however, that a certain number of those persons who perish from drowning every year, instead of being taken with the conventional cramp, are victims of acute exacerbations of Menière's disease and need to be warned. With regard to brain tumor, however, the vertigo may be one of the earliest symptoms and the recognition of the character of the lesion before the neoplasm has contracted adhesions and injured surrounding nerve tracts, is the best possible preliminary for radical operation.

ECHOES AND NEWS.

NEW YORK.

Public Baths and Public Health.—The daily press announces that Dr. Walter Bensel, who has charge of the summer corps of the Department of Health, reported last week to the Health Board that many of the public baths in this city were in a filthy and unsanitary condition. The report refers in particular to the baths at the Battery, West Thirty-fifth street, West Eighty-second street, East Third street and Corlears street. Dr. F. S. Dillingham, the assistant sanitary superintendent, to whom the matter had been referred, reported to the board as follows: "Investigation of the floating baths situated on the waterfront of this city shows that many of them are in an unsanitary condition and are located near the mouths of sewers which contaminate the water. Previous investigation of the baths on the land shows that many are kept in an unsanitary condition and that the water is not changed oftener than once or twice a week. These baths should be directly under the supervision of the Department of Health, and I would recommend that section 200 of the Sanitary Code be amended to read that no baths be maintained in the city of New York or along the waterfront without a permit from the Board of Health." Dr. Dillingham's recommendation was adopted.

Preventive Medicine.—In our issue of January 11 we called attention to the prizes offered by the Maltine Manufacturing Company for the best essay on preventive medicine. A further circular has just been received which may prove of interest. It reads: "Believing that a proper exercise of preventive medicine is of incalculable importance to the human race and desiring to stimulate further research in this line, or at least to disseminate some of the newer ideas so prominently discussed by the medical profession of recent years, we offer two prizes: A first prize of one thousand dollars and a second prize of five hundred dollars in cash for the best essays on that subject.

"Conditions of the Competition.—1st. Essays offered in competition must treat the subject of Preventive Medicine in its various relations to the welfare of the human race, either treating the topic in its broadest scope as affected by disease, custom, environment, heredity, etc., or from the view-point of the specialist who contends that the most potent factors inimical to mankind result from special conditions which he is enlisted to combat. 2d. In order that there may be no violation of medical ethics and no suspicion of mere commercialism on our part, Maltine or any of its combinations *must not be mentioned or even indirectly alluded to in the essays.* 3d, Competition is open to graduates of all recognized medical colleges. 4th. The essays will be judged by the following gentlemen: Daniel Lewis, A.M., M.D.; Charles A. L. Reed, A.M., M.D.; John Edwin Rhodes, A.M., M.D., and the prizes awarded in accordance with their decision. 5th. The essays are to consist of at least 10,000 words. 6th. Each competitor is to send us three typewritten copies of his essay. These copies are not to be signed by the author, or contain anything which might point to his identity, but are to be signed with a *nom-de-plume.* 7th. A sealed envelope shall be sent to us containing this *nom-de-plume* together with the author's name and address. This envelope must be endorsed 'For Identification,' and will remain sealed until the judges have decided upon the two prize-winning essays, and will then be opened in order that the names of the successful competitors may be ascertained. 8th. The prize essays and any others which are deemed suitable will be published in a medical journal or journals subject to the approval of the authors. 9th. We reserve the right to republish any of these essays in pamphlet form, restricting the circulation to the medical profession. 10th. *Essays entered in competition must be in our hands by September the first, 1902.*"

Malaria in New York.—In continuance of the work of the Health Department, as noted in the Medical News of last week, the Board of Health has sent out a circular for the people which is signed by Commissioner of Health Lederle and Dr. Hermann M. Biggs, the medical officer, declaring that the disease undoubtedly originates from the bill of the malaria-spreading mosquito (anopheles). The circular continues: "To prevent malaria, therefore, we must either destroy the dangerous mosquitoes or avoid their bites. In practice, both expedients are desirable. As the malarial mosquitoes bite as a rule only at night, one will be usually safe by protecting his bedroom either with screens at the windows or a mosquito bar carefully arranged over the bed. Before going to bed one should kill all the mosquitoes resting on the bedroom walls, in the closets or under articles of furniture, as the insects already in the room are most apt to give trouble. Moreover, all cases of malaria already developed must be carefully isolated under mosquito netting until pronounced by a competent physician to be cured.

"The other and still more important measure is to prevent the breeding of mosquitoes in one's neighborhood. All mosquitoes require standing water to lay their eggs in. To kill the mosquito larvæ, therefore, the rule is simple: No standing water. Where standing water must be had for washing or drinking the top of the receptacle should be closely covered with wire gauze—not the smallest opening being left at the margin. When drainage can not be made possible, the surface of the water should be covered with a film of kerosene oil. The oil may be poured on from a can or sprinkler. It will spread of itself. One ounce of oil to fifteen square feet of water is enough. The oil must be renewed about once a week during the mosquito season. Mosquitoes do not fly far from their breeding places, and if all the householders in a given neighborhood will observe the simple rules given, experience has already amply proved that the results will be amazing. Persons keeping stagnant water on their premises are guilty of maintaining a nuisance, and it is the purpose of the department to proceed against all who neglect the warning of the department in this respect. Where large bodies of water, the drainage of which is too expensive for private enterprise, are in question, the department hopes to enlist the assistance of the proper city authorities so that there need be no reason why the plague of mosquitoes and malaria in the suburbs of New York should not be entirely removed."

PHILADELPHIA.

Pharmaceutical Association to Meet in Philadelphia.—The semi-centennial meeting of the American Pharmaceutical Association will be held in this city beginning September 8, 1902. It is expected that 1,000 delegates, including a number from foreign countries, will be present.

Gifts to Hospitals.—By the will of Mary E. Jackson beds are endowed in hospitals as follows: $6,000 for free bed in Home for Consumptives; Pennsylvania hospital, $5,000; Protestant Episcopal hospital, $5,000 to endow a bed in the Harrison Memorial annex for incurables, persons afflicted with cancer to have the first claim.

Dentist Severely Injured.—Dr. Arthur R. Dray, of the operating clinic of the Dental department of the Medico-Chirurgical College, met with a serious injury August 9 by falling through a railroad trestle near Fort Hill. Both of Dr. Dray's wrists were broken and his back severely bruised. Dr. Dray is a native of London, Eng., and spent much of his early life as a missionary in India.

Sanatorium for Consumptives.—This sanatorium at White Haven is overwhelmed with requests for admission. Already there is a waiting list of 100 and applications average five a day. The plans of the organization provide for three institutions in addition to the one named above. The President, Dr. Lawrence Flick, declares that tuberculosis could be stamped out in Pennsylvania in 15 years at a cost of $6,000,000.

Change of Quarantine Officers.—Dr. Hiram W. Austin, who for the last four years has been chief surgeon in charge of the United States Marine Hospital Corps at this port, and of the government quarantine station at Reedy Island has been transferred to Detroit, his successor being Dr. Fairfax Irwin, who comes from the Boston Marine Hospital. During his service here Dr. Austin became very popular, and made many improvements at the quarantine station.

Fraud in Canned Meats.—It is reported that the agents of the State Dairy and Food Commissioner have unearthed an audacious fraud in canned meats that rivals the famous nutmeg swindle. An examination of certain cans of meat labeled Hamburger steak disclosed the fact that they contained ground refuse meat, bones, and sawdust, preserved and colored red with chemicals declared to be injurious to health. The product is said to have come from a New England firm.

Filtered Water is Again Promised.—The water department has again promised that a portion of Philadelphia will soon have filtered water. That part of the Roxborough plant which will supply Manayunk and Germantown has been completed and filled with sand, the material now needing only to "mellow" before it is ready for use. These districts may expect filtered water at an early date. The principal filtration beds at Torresdale are still very far from completion.

CHICAGO.

Appointment of Dr. Snow.—Dr. Morton M. Snow has been commissioner, first lieutenant and assistant surgeon, I.N.G., and assigned to the First Cavalry.

Appointment as Assistant Surgeons.—Drs. Frederick H. Blayney and W. A. Kuflewski, upon the recommendation of the regimental commander, have been appointed assistant surgeons in the Illinois National Guard, with the rank of first lieutenant, and assigned to duty in the Second Infantry.

Suit Brought by Dr. Peck.—Dr. A. H. Peck, dean of the dental department of the Illinois State University, has brought a suit for $10,000 for damages, against Dr. Cassius C. Rogers. The basis of the controversy is asserted to be the publication at the instance of Dr. Rogers of an article in the July number of the Journal of the American Medical Association making the charge of plagiarism against Dr. Peck.

Physicians Endorse Healy.—Daniel D. Healy, republican candidate for sheriff, received on Monday, Aug. 4, as a parting present, an endorsement of his candidacy, signed by more than 900 physicians and surgeons of Chicago and Cook county. The document was handed to Mr. Healy just before his departure for Colorado, and included among the names were those of many of his associates in the administration of the County Hospital.

Illness of Mr. Whitford.—Mr. William Whitford, the well-known medical stenographer of Chicago, has been suffering for the past two weeks from an attack of appendicitis, for which he was operated on. Mr. Whitford is the official reporter for most of the national medical associations of the country, as well as the local medical and dental societies. He is progressing very favorably, and it is hoped will soon be able to leave the hospital.

Pure Food Lawsuits.—Fifty-two suits have been started by the Illinois State Pure Food Commission in various Chicago and out-of-town justice courts against persons charged with violating various pure food ordinances and laws. Commissioner Alfred H. Jones has been at the head of this crusade, and is pushing the prosecution against the alleged violators with considerable vigor. Most of the charges are violations of the vinegar and butter laws.

Miller Must Stand Trial.—O. E. Miller, of the St. Luke Society fame, received a setback in Justice Chott's court, when his attorney sought to secure his release on a technicality. It was set up by the attorney that the complaints were faulty, and that the evidence submitted by the prosecution was the same as had been offered in another case. Justice Chott overruled the motion to dismiss, and informed the lawyer that Miller would be compelled to make a defense to the allegations. He is charged with having conducted a hospital without a license in connection with his liquor and drug treatment at the St. Luke Society institution. Evidence was to be heard Aug. 12.

Surgery on Trains.—Train employes of the Northwestern Road are to receive instruction in the science of medicine and the art of surgery, so that they shall be able to set a broken leg and bind up the wounds of the injured. W. A. Gardner, general manager of the company, now has the plan under consideration, and, together with Dr. Owen, chief surgeon of the company, is arranging the details. The purpose of the project is to make every train crew on the Northwestern system competent to give first aid to the wounded and injured in wrecks. Railway surgeons have estimated that at least 50 or 75 per cent. of the deaths which now occur from injuries received in railway wrecks would not occur provided the injured received skilful and intelligent aid at once. The value of the theory has appealed to the officials of the Northwestern.

Scope of Instruction.—It is proposed to establish a school of instruction where train crews can be taught rudimentary surgery, become familiar with many of the remedies used for the purpose of temporary relief, and learn what materials are used, and how to use them. In this connection, every passenger and freight train will carry a medicine chest, well stocked with all the materials which the physicians and surgeons think essential for the purposes. Decision has not entirely been made as to the contents of the medicine boxes, but they will have, among other materials, a supply of splints, cotton, bandages, various lotions, salves and restoratives. The employes who will receive instruction as to the best manner of using the supplies are engineers, firemen, conductors and brakemen. One of the main things to be taught is the art of binding up a wound after having cleansed and disinfected it. This alone, it is claimed, will result in saving many people and making the lot of many more comfortable when injured.

Hospital in Need of Funds.—The emergency hospital, conducted under the supervision of Dr. Gertrude Gail Wellington, in Plymouth Court, threatens to be permanently closed, owing to lack of funds for its maintenance. This is one of the two down-town emergency hospitals, where injured persons can receive immediate medical treatment without the necessity of a long drive in an ambulance to the county hospital. It has been used largely by the police, as it is the most central. The majority of patients brought in have been charity cases. The immediate cause of the financial straits is the increase of rent from $60 a month to $175. This amount Dr. Wellington declares she cannot pay without outside help. There is no fund now provided by the city for emergency cases, as in previous years, but the city has had the use of the hospital nevertheless. According to Dr. Wellington, the hospital will be closed Oct. 1, unless citizens assist in raising money to pay the rent and to provide for it. "The city ought to help," declared Dr. Wellington. "For two years I have paid all expenses myself, and have not received a cent from it. If a committee will carry on the work, I shall retire. It is essential that some place be provided downtown for emergency surgical cases." Chief of Police O'Neill and Secretary Pritchard of the board of health, each declared the hospital to be of great service in emergency cases. "Having a place so handy has been the means of saving many lives," said Chief O'Neill. "I would be sorry to see it closed."

Typhoid Fever Reaches Epidemic Stage.—Up to Monday evening, there were 165 patients in the County Hospital suffering with typhoid fever. Seven patients out of a total of 40 admitted to the hospital on Aug. 1 were typhoid fever patients, and on Aug. 2 twelve more were received. There are 18 cases at the Presbyterian, 22 at the Alexian Brothers', and 20 at the West side hospitals, and nearly every one of the institutions in the city has a colony suffering from this disease, which is feared more than smallpox by the physicians. The weekly reports of the health department show a total of 16 deaths from typhoid during last week. That the number of fatalities is not larger is due to the fact that the epidemic has not been running long enough for the disease to have run its course in the greater number of instances. The mortality is expected to be much heavier this week. The outbreak of typhoid is thought to be due to the long-continued rains during May, June, and July. Impure drinking water, produced by the constant flushing of the sewers and the streets in the heavy thunderstorms, is said to be responsible for a great number of cases. The old advice of "Boil all drinking water" is urged by the health department as the best means to prevent the disease, and it is advised, in addition, that a careful watch should be kept on all uncooked foods, especially milk and ice. The sudden spread of typhoid at this season of the year is regarded as a baleful sign. The medical profession has grown to look for a large increase in the malady during the early part of September, and it sometimes continues as late as December. Seldom does it make its appearance in the first week of August. As yet, the great percentage of cases have been mild in their character, and most of the patients are recovering. A peculiarity of the disease seems to be that nearly every patient has symptoms of diseases of the respiratory organs, such as bronchitis or pneumonia.

GENERAL.

The Fifteenth Congress of the French Surgical Association.—This congress will be held in Paris, October 20 to 25, 1902.

To Limit Use of Saccharin.—Laws recently passed in France and Germany prohibit the use of saccharin for other than medicinal purposes, and require a special license for its manufacture.

Craig Colony Assistants.—The Craig Colony for Epileptics at Sonyea in Livingston County wants to secure the services of recent graduates in medicine to act as Medical Internes. The positions are unpaid, but those who hold them get board, lodging and laundry free. The opportunity offered is the very best for studying epilepsy and other nervous diseases, and considerable experience may also be had in general medicine and surgery. For further information write Dr. W. P. Spratling, Medical Superintendent, Sonyea, N. Y.

Annual Meeting of the Medical Society of the Missouri Valley.—The annual meeting of this association will be held on September 18 at Sioux City, Iowa, and from present indications it will be one of the most interesting sessions of the year. The following papers have been promised: Vernal Catarrh, especially in Adults, H. Gifford, Omaha; Dysmenorrhea, W. O. Henry, Omaha; Light in the Treatment of Tuberculosis, J. W. Kime, Ft. Dodge; Surgical Treatment of Cleft Palate, A. P. Condon, Omaha; Ileo Colitis, W. Berry, South Omaha; Chronic Spinal Muscular Atrophy, F. E. Coulter, Omaha; Multiple Compound Fracture of the Skull, G. G. Cottam, Rock Rapids, Ia.; Surgical Treatment of Lesions of the Stomach, J. E. Summers, Jr., Omaha, Neb.; Vesicular Mole, Mary Strong, Omaha, Neb.; Uretero Cystostomy, A. J. McKinnon, Havelock, Neb. The regular program will be issued September 1.

Flies and the Cholera.—The ordinary household fly is partly responsible for the awful spread of cholera in the Philippines, says Major L. M. Maus, Commissioner of Public Health for the Philippine Islands, in a report just received at the War Department. The report says that from March 20 to May 15, 1,005 cases of Asiatic cholera were reported in Manila, 800 of which resulted fatally. The cases in respect to nationality, deaths and mortality were divided as follows:

	Cases.	Deaths.
Filipinos	862	699
Chinese	103	71
Americans	23	18
English	13	10
Europeans and others	4	2

Since it has been definitely determined that the epidemic was the result of food infection, great attention has been paid to the supervision of the markets and cooked food shops and the preparation and care of food in the native houses. Rules and regulations were issued prohibiting the peddling of all drinks and cooked food on the streets, prohibiting 23 special articles of diet prepared by the Chinese for sale to natives and demanding a rigid enforcement of the order for keeping all articles of diet in the city covered and free from flies. Many samples of food were sent to the laboratory for examination, also a number of flies caught in infected houses. The cholera spirilum was found in several samples of the food, especially in cooked rice, which was left exposed, and in some of the blue bottle flies. There is no doubt but that the ordinary household flies can also transfer the cholera spirilum from infected matter to food, as is the case with typhoid fever. The Board of Health has inaugurated a crusade against flies by means of fly poison. Outside Manila there were 2,709 cases of the disease and 1,694 deaths.

The large blue bottle fly is said to be also an active agent. A careful entomological study of the flies is advisable.

Lake Keuka Medical Association.—The third annual meeting of the Lake Keuka Medical and Surgical Association will take place at Lake Keuka, Aug. 19, 20, 1902. The following program has been arranged: President's Address, State Legislation for Nurses. By Sylveen V. Nye, Buffalo. Discussion opened by Catherine E. Latta, Geneva; Care of the Infant. By J. L. Miller, Corning. Discussion opened by C. W. M. Brown, Elmira; Appendicitis, with Report of Some Unusual Cases. By C. H. Ott, Robert Packer Hospital, Sayre, Pa. The Rational Treatment of Appendicitis. By C. M. Post, Alfred. Discussion opened by Henry Flood, Elmira; What, When and How Shall We Eat to Insure Long Life. By William E. Palmer, Hornellsville; Vegetarianism, by a Vegetarian. By Mrs. C. W. Etz, Hornellsville; A Further Discussion of Diphtheria, with Reference to its Control. By William Austin Macy, Willard State Hospital. Discussion opened by C. O. Green, Hornellsville; Valves of the Rectum. By James C. Tuttle, New York; The Eye in Nervous Diseases. By Wm. C. Krauss, Buffalo. Discussion opened by Wheelock Rider, Rochester; Ex-Ophthalmic Goiter. By George Himelsbach, Buffalo. Discussion opened by C. E. Doubleday, Penn Yan; The Causation and Care of Backwardness in Children. By Frank H. Koyle, Hornellsville. Discussion opened by Geo. M. Case, Elmira; Points of Necessary Prominence in the Treatment of Chronic Catarrhal Deafness. By Sargent F. Snow, Syracuse; A Surgical View of Chole-lithiasis. By Eugene A. Smith, Buffalo. Discussion opened by W. W. Skinner, Geneva; The Insanity of George III. By D. R. Burrell, Canandaigua; A Case of Biliary Calculus, with Complications. By O. J. Hallenbeck, Canandaigua. Discussion opened by T. A. Wales, Elmira; The Complications and Degeneration of Fibroid Tumors of the Uterus. By C. C. Fredricks, Buffalo. Discussion opened by H. P. Jack, Canisteo; Diagnostic Palpation for Prolapse of the Kidney and Method of Fixation. By A. H. Goelet, New York. Discussion opened by B. R. Wakeman, Hornellsville; Rheumatism of the Spine External to the Cord. By Thos. H. Manley, New York; The Treatment of Epilepsy by the General Practitioner. By William P. Spratling, Craig Colony, Sonyea. Discussion opened by Floyd S. Crego, Buffalo; Colles Fracture. By Arthur W. Booth, Elmira. Discussion opened by M. L. Bennett, Watkins; The Diet of the Asthmatic. By George N. Jack, Depew. Discussion opened by H. D. Wey, Elmira; Some Opinions from the Back Woods. By C. R. Bowen, Almond. Discussion opened by H. R. Ainsworth, Addison; The Laboratory as an Aid to Diagnosis. By Edward H. Hutton, Corning. Discussion opened by Frank H. Ross, Elmira; The Technic of Labor. By W. A. Howe, Phelps. Discussion opened by T. A. McNamara, Corning; Internal Eczema. By A. L. Behan, Canandaigua; Hypertrophy of the Prostate. By Wm. B. Jones, Rochester; A Tribute to the Memory of the Late M. T. Babcock. By Clark Bell, New York.

Obituary.—Dr. Erasmus Darwin Beach, the oldest physician in New Orleans died there last week, aged 87. He was born near Cincinnati, Ohio, went to New Orleans in 1846, and had practised medicine for more than half a century. Dr. Henry Darling, a well-known physician of Washington, died at his home at Brightwood, D. C. last Thursday, aged 58 years. He was a graduate of the University of Virginia, and of the medical department of the University of Maryland. Dr. Roy H. Hawkes died from typhoid-pneumonia Tuesday at his home, No. 42 East 112th street. Born in 1872 in North Bridgton, Me., he spent the greater portion of his life in this city. He was graduated from Columbia University in 1892.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

FORTY-SIX MAMMARY CANCER CASES ANALYZED—PRIMARY SARCOMA OF THE SYNOVIAL MEMBRANE OF THE KNEE-JOINT—CYTODIAGNOSIS OF PLEURAL EFFUSIONS—INFECTIVITY OF THE MILK OF COWS WHICH REACT TO THE TUBERCULIN TEST BUT ARE NOT CLINICALLY TUBERCULOUS.

THE closing months of activity among the various scientific societies of Great Britain were filled with important sessions of all the well-known bodies. Among many numerous topics under consideration the following possess a highly practical value:

T. BRYANT, at the Royal Medical and Chirurgical Society, May 13, 1902, read a paper entitled, "An Analysis of 46 Tabulated Cases of Cancer of the Breast Which Have Been Operated Upon and Survived the Operation from Five to 31 Years." The points which the writer elucidated were, (1) the prospects of life after a primary operation for cancer of the breast; (2) the likelihood of a recurrence of the disease at the seat of the operation and in the opposite organ; (3) the influence of the operation upon the general progress of the disease. The standard of cure implied in a three years' freedom from any signs of the disease after operation he regards not only as unreliable but also as misleading, according to his experience in many cases. He subdivides his series of cases into three groups, as follows: Group I comprising 17 individuals who after operation survived five years or more without symptoms or signs of the disease, of whom nine enjoyed this experience from five to 10 years, and eight from 10 to 20 years after interference, and 13 are still alive and very well. His routine operation is to remove the breast with the super- and adjacent skin and fat and for the purposes of safety and examination all the lymph-nodes from the axilla (if at all suspicious) along with the fat. He cleans the surface of the pectoral muscle in all cases and removes it only if it is invaded. Routine ablation of this muscle he regards as unnecessary. Group II included 19 patients who suffered from a recurrence at the seat of the operation. Of these three had the secondary appearance in the scar manifest itself one year after the operation, when a secondary interference done at once secured freedom from a reappearance up to the present time, namely, after four years in two, and nearly 10 years in one of these persons. In nine of this group the recurrence had been delayed between four and seven years, of whom three appeared to demand no second operation. Group III comprises ten women in whom the second breast was involved, and four of them showed secondary deposits in other parts of the body at the same time. If the interval elapsing between the primary operation and a recurrence in the same or in the opposite side be calculated from these 46 cases, it will be found exceedingly variable. In the former half of the series it appeared as five years or less, and in the latter half as varying between six and 32 years, and with two-thirds of the entire series it was 10 years or over. The seat of the recurrence was also various, namely, in the old scar in 14; in the old scar and axilla together in one; in the sternum in three; in the second breast in 10 cases, of whom half had it in the old scar at the same time. He cleared the axilla out in only one secondary operation. His practice is not to ablate its contents at every operation, and yet these results do not show an inadequate operation. They do, however, show that operation for cancer of the breast even when undertaken at a very early period does not secure such flattering results, as was once supposed. When a recurrence has advanced so far as to render another focal operation impossible, he considers two sources of treatment: removal of the ovaries and radiographic therapy. Removal of the ovaries is of highly doubtful utility. The X-ray has proved in very competent hands so very successful that none can properly ignore its claim to acceptance. It must be used, however, by competent persons only. For the average cancerous deposits, it appears that a three months' course of treatment with three applications a week is the shortest period of any value.

C. B. Lockwood, at the Clinical Society of London, May 9, 1902, read a discussion of a case of primary sarcoma affecting the synovial membrane of the knee-joint. The patient was a young woman, married, who for three years had had swelling of the right knee with some flexion but hardly any real loss in the amplitude of the motion. The capsule of the joint was distended by a swelling of the synovial membrane which made the joint three-quarters of an inch larger than its fellow, with some local warmth and tenderness. A consultation was held and the almost unanimous opinion was that the disease was tuberculosis of the knee. No previous treatment had been undertaken, therefore the joint was put at rest in a splint. The patient was not seen again for nearly one year when she again presented herself for a continuance of treatment because the symptoms had increased. A resection was done and at the time of the operation the absence of fluid or pus within the joint-cavity was noted and also the freedom of the tissues from necrotic signs. The specimen was divided between two eminent pathologists, one of whom reported spindle-cell sarcoma and the other oval-cell sarcoma. Lockwood called attention to the deceptive similarities between the early clinical courses of this sarcoma and of tuberculosis, but added that the absence of muscular wasting and of limitations of motion in the joint were probably distinctions between the two diseases. There could be no doubt, however, as to this disease having been true sarcoma primary in the synovial membrane of the knee-joint.

G. L. Gulland, at the Edinburgh Medico-Chirurgical Society, May 7, 1902, contributed a monograph on the cytodiagnosis of pleural effusions. He stated that there are several varieties of pleural effusion, like empyema, in which examination of the cells of the fluid was not necessary, because a recognition of the germ which excited the exudation was alone required. In the serous forms of pleurisy, however, an examination of the cells was on the contrary advisable because for many years the cause of this common acute affection of the chest had been under dispute, as to whether it is rheumatic, tuberculous, idiopathic, or acutely infectious. For many years the rheumatic origin of the disease was the most generally accepted, but at the present time tuberculosis is more and more believed to be in the causative relation of pleural effusions which can not otherwise be explained. The purely idiopathic theory also has adherents. The selection of the mode of treatment depends upon the accuracy of the diagnosis. In the discussion of the tuberculous cases little heed is attached to that form of pleurisy which is secondary to a well-established and previously-diagnosed phthisis. There are, however, many tuberculous cases in which the lungs are not affected, and an early appreciation of their nature is the first element in their proper treatment. In such cases the disease of the lung may be so slight as to give no physical signs, or only transitory signs which are readily overlooked. In such chests a serous exudate from the pleura will relax the lung and obscure what signs might be found and for the first short time hide symptoms like sputum from the lung. On the other hand the peculiar signs of pleurisy like bronchial breathing may simulate lesions in a lung really sound except as to its serosa, and therefore lead to a diagnosis of disease in the viscus. The injection of tuberculin as a diagnostic step is of no value because the patients already have fever daily. The sero-diagnosis of tubercle is also of little value because fraught with so many technical difficulties as to render the likelihood of a perfect technic very small. The morphological examination of the blood is also not of much value, because in slight cases the blood changes are absent or too slight to be definite, while in the severe cases the leucocytosis might be extreme. A differential leucocyte count is, therefore, not very reliable. In the absence at present of any other means of diagnosis he considers an examination of the fluid exuded of prime interest. Organisms are best recovered from the exudate when it is very fresh because the fluid is so highly bactericidal that the germs are either destroyed or rendered incapable of cultivation upon the usual media. In cases of tuberculosis the bacilli are very difficult to demonstrate for this reason, and also because they are always relatively very few and their toxins rather than themselves cause the exudate.

In examining the cells of the exudate the following procedures were recommended by him: A syringe, sterilized by boiling, sufficiently capacious to withdraw enough fluid for centrifugation must be employed. If the cells are very numerous the examination could go forward without the centrifuging. His own formalin-alcohol method of fixing the films is very serviceable, so are the eosin and methylene-blue and Jenner's stains, but not the tri-acid stain. To show the granules in the polymorphonuclear cells sudan, followed by hemotoxylin when fat is to be demonstrated and by iodine when glycogen is in question, is endorsed by him. The cells of the exudate fall naturally into two groups, namely, those from the blood and those from the tissues. Red blood-cells and leucocytes, polymorphonuclear neutrophile cells and lymphocytes are common, basophilic leucocytes are infrequently and eosinophylic cells, almost never seen. The red blood-cells show no alterations of diagnostic value. The polymorphonuclear neutrophile cells may, and usually do, resemble their normal appearances in the blood when the specimen is fresh, but if the specimen is old various degenerative features are the rule. Their cell-body might undergo simple dissolution and so render the granules free to float about, or produce a fatty degeneration which is a great rarity in specimens from the circulating blood, but quite common in exudates. The same comparison obtains with reference to glycogenic degeneration. The nucleus of this type of cells might lose some or all of its affinity for the basic dyes and stain faintly, or it may lose its intranuclear network and color deeply and homogeneously. The lobes often separated one from another and broke up into fragments, each taking a part of the nucleus with it, or the nucleus as a whole ran together and stained homogeneously and then may be mistaken for red blood-cells with nuclei. The lymphocytes usually appeared just as they do in the blood and are evidently less apt to degenerate than the polymorphonuclear cells. The tissue-cells come commonly from the endothelial covering of the pleura. They sometimes occur in clumps, but more often they are single. They resemble leucocytes somewhat, but have round nuclei and bodies either of uniform or ragged outline and considerably larger. As regards the tuberculous exudates *per se*, the description varies according as to whether the examination be made during the first three days or later. In the earlier period the polymorphonuclear cells abound, but after the third day they become relatively fewer and are replaced by the lymphocytes. In well-established tuberculous pleurisies there will be red blood cells, many lymphocytes, a few polymorphs and some endothelium. The lymphocytes always reach half and may be two-thirds to four-fifths of the total number of cellular elements.

The importance of differentiating between other cells degenerated so as to resemble the lymphocytes and the lymphocytes themselves is of importance because of the significant rôle which the lymphocyte plays in these exudates. The number of endothelial cells is small, probably because the fluid spreads rapidly over the surface of the serosa. Pleura effusions caused by the pneumococcus and the streptococcus follow the same law as to a great predominance of the lymphocytes, the relative scarcity of the polymorphs and endothelium which may be more or less degenerated. Red blood corpuscles occur, of course. The relation between the polymorphs and the endothelial cells seems to be that the more acute the process and the more apt it is to go on to empyema, the greater will be the relative number of the polymorphonuclear cells altered and degenerated, although the quantity of fresh and altered endothelium will also be augmented. Edematous effusions, as in heart and kidney disease, are apt to be rich in desquamated endothelial cells. Pulmonary apoplexy with effusion is accompanied by polymorphs. Malignant neoplastic pleurisies usually show large bunches of the cells desquamated, many in a degenerated especially fatty condition. Many polymorphs are also present. By these points he has been able to diagnosticate tuberculous and simple pleurisies, so that their subsequent courses bore out his opinions. He hopes that the data will be serviceable in the hands of other observers and become fully reliable.

E. J. **McWeeney**, at the Royal Academy of Medicine in Ireland, April 25, 1902, read a paper on the infectivity of the milk of cows, which reacted positively to the tuberculin test, yet shows no signs of tuberculosis clinically. The very great importance of the question lies in that detail of it which refers to the propriety of the consumption of such milk by human beings. In order to begin at the foundation of the matter he proceeded to investigate the percentage of cows which, while reacting to the tuberculin test gave no clinical evidence of that disease. He first investigated a herd of 80 to 100 cows kept under conditions of hygiene far above the average and was surprised to find fully 50 per cent. reacted positively to the tuberculin test. At a later date he examined another herd in the south of Ireland which was not kept under hygienic surroundings and proved that 80 to 90 per cent. reacted positively. To decide that the milk from such animals was not fit for consumption would mean a cutting-off of the milk supply, which was not practicable. Some of the reactions to the test were of unusually pronounced type, the fever reaching 104°, 105°, 106° and even 108° F. in some cases. Strange as it may seem the fever was in inverse ratio to the degree of the tuberculosis, probably because those animals which had a clinical manifestation of the disease had already had their blood immunized by this toxin, hence this added dose produced scarcely any reaction. In the animals which gave the violent reactions he found not more than one or two caseous glands, chiefly in the posterior mediastinum. All these observations are based upon postmortem examinations, because all animals upon which he experimented were killed and examined. All those which had only one or two infected deposits had been producing milk in which no tubercle bacilli were found after painstaking search. He also carried out a number of experiments for demonstrating the effects of the milk from these cows, when fed to young animals. It must be remembered that certain "acid-fast rods" may be mistaken for the bacilli.

Almost the identical experiments by **Perstatay**, in Berlin, were carried on with the following results: He fed young calves and pigs upon the milk of such cows as reacted to the tuberculin test, but had no clinical evidence of the disease. The calves were thus fed for two months and the pigs for seven months without one instance of tuberculosis. The milk of cows which reacted in this manner could not be demonstrated to contain bacilli. If the udder had any deposits then they were always abundant in the milk. Bang of Copenhagen gave one liter of milk from a cow with a tuberculous udder and the animal died in short time as if poisoned. The percentage of cows having tuberculosis of the udder has been calculated at between two and four. McWeeney has himself not yet seen a case of it. When encountered, any good veterinarian should be able to diagnose it at once. McWeeney thinks that bovine tuberculosis is capable of infecting man.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.*

Seventieth Annual Meeting, Held at Manchester, July 29, 30, 31, Aug. 1, 1902.

(Continued from page 237.)

Natural History of Disease a Basis for Therapy.—Sir Thomas Barlow in his address on medicine said that worrying times are these, and we have often to possess our souls in patience. There are those who still maintain that medicine has no claim to the title of an exact science, and yet some of the most estimable fellow-citizens do all that lies in their power to hinder the employment of one of the methods which contribute towards making medicine an exact science. On the other hand, in view of the striking development of some of the modern applications of the physical forces, there are not wanting those who sneer at us as bigots and obscurantists when we hesitate to write a blank check for the reckless employment of these modern applications in diseases of which our knowledge is very limited.

But let us reflect how strange and varied has been the progress of practical medicine, by which is meant all that body of knowledge concerned with the cure and the prevention of disease. The history of the earliest efforts in the relief of pain is wrapped in mystery. Perhaps they were not unlike the sports or spontaneous variations which are claimed by the Darwinian hypothesis as the first steps in the development of species, those variations which were useful to the organism being perpetuated by a survival of the fittest. But at all events—and let us frankly admit it—the basis of our practice is empiricism, and the basis of all our practical life is empiricism. But there is good empiricism and bad. The good empiricism continually strives to follow Nature's lead, and shed that which is foolish and useless while preserving that which is essential. And good empiricism, by carefully recording cases, noting the results of changes made first by chance and then by design, may at length assimilate to a truly inductive process, even though there are many unknown quantities. But as Nature herself seems sometimes to fail, and leaves behind vestiges and survivals in our bodily conformation which may give rise to trouble, so we also in our treatment sometimes preserve methods of long past utility which may now and again be harmful.

How much we owe to the good sceptics—or, in other words, the independent observers—of whom Sydenham was one; and of whom, in our generation, there was no finer example than Sir William Gull. These are the men who have taught us to look disease straight in the face with our own eyes, and to realize what is its natural cycle, and ask ourselves within what limits we can reasonably hope to modify it. And as a warning against becoming self-centred and self-opinionated, let us never forget Bacon's wise aphorism: "For as they were men of the best composition in the State of Rome which either, being Consuls, inclined to the people, or being Tribunes, inclined to the Senate; so, in the matter we now handle, they be the best physicians which, being learned, incline to the traditions of experience, or, being empirics, incline to the methods of learning."

It is in the period of half knowledge that the practice of medicine has often cut a sorry figure. For theoretical lines of treatment, based on incomplete physiological and chemical data, have often produced melancholy failures.

But the outcome of the new experimental pathology of the last quarter of a century, controlled by clinical observation, applied and tested by clinical experience, has justified us in claiming that at length our work has ceased to be fairly described as groping in the dark, and that in some definite instances medicine has justified for itself the designation of an exact science.

Bacteriology and Treatment of Diphtheria.—He chose as his first illustration one of that group of acute specific diseases to which in his discourse Sir William Roberts gave his chief attention. He recalled the chaotic and bewildering state of doctrine on this disease only a dozen years ago. There were the endless, and not altogether academic, disputes as to the difference between croup and diphtheria; as to whether there was a true membranous croup which was different from laryngeal diphtheria; and as to the diagnostic differential signs of diphtheria which appeared to elude the most careful anatomical definition. Malignant diphtheria of the throat was easy to diagnose, but as to the nomenclature of mild cases simulating follicular tonsillitis, and of the throat exudations complicating scarlet fever, an experienced man was the last person to dogmatize. It was only, at length, by studying cases in epidemic groups, and especially by noting the paralytic sequelæ, that it was learned how widely the net must be cast in order to include examples in which there had been no visible membrane at all, though there might in some of them have been exudation in the post-nasal region, and, for a time, thin irritating discharge from the nostrils. The opinions as to its etiology were as diverse. The profession was not prepared to deny that exposure to cold was a cause, and after cold came drains. Drain poisoning, serious as it is in lowering vital resistance and preparing a suitable soil, has been often made to bear more than its fair share in the immediate causation of specific disease, and diphtheria was a notable case in point. Sir William Jenner, whose enlightened doubts were nearly as valuable as his absolute statements, would never admit that the direct relationship of diphtheria and drain emanations was proved. But the confident assurance of many people on this doubtful point was often exceedingly mischievous, for though it led to sanitary investigations and helped sometimes to bring about sanitary improvements, it also led to the quiet ignoring of other possible sources of the disease. There was a time, not many years ago, when cases of membranous croup were treated in children's hospitals in ordinary wards, and there were those who stoutly maintained that these cases were not contagious.

The further study of epidemics led to the conclusive proof that in some cases the disease was disseminated by milk. Then came the observation that epidemics were often followed by sporadic cases, or preceded for a time by mild and ambiguous sore throats. By degrees, even in apparently sporadic cases, we attached more and more importance to insidious personal contagion, and to see that the disease was maintained and became manifest by the moving to and fro of slight cases, especially in schools and places where children were closely aggregated. Increase of the disease seemed to correspond with the period when compulsory school attendance was enforced, and there grew up a strong presumption in favor of the tenacity of infective material associated with bedding and clothing.

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* From advance sheets by courtesy of the Editor of the British Medical Journal.

And if there were wide differences of opinion as to the signs and causation of the disease, how varied were the different lines of treatment. He recalled the routine administration of antimonials and emetics in laryngeal cases which held sway so long, probably on account of the confusion in diagnosis. The cases that were benefited were those of simple laryngeal and tracheal catarrh with spasm, but the true membranous cases were almost certainly made worse. It was but slowly that the consensus of opinion grew in favor of quinine and iron and other tonic methods. The local applications were multiform, and all remember the pitiful struggles of many a tender child at the swabbings which were fruitlessly and repeatedly applied. When the ba- [illegible] diphtheria had been isolated by Klebs and the [illegible]n of it in animals had been demonstrated by [illegible] produce diphtheritic lesions, the first step had [illegible]en in unraveling the skein. But medical science [illegible]er indebted to the bacteriologists for solving [illegible] of the clinical difficulties by demonstrating that not all false membranes are diphtherial. The streptococci, for example, seem capable of giving rise to pseudo-membranous deposit. The exudation occasionally present in early scarlatinal throats, which are extremely red and swollen, is not generally true diphtheria, and this harmonizes with what is found clinically, that the exudation seldom spreads, and that paralysis does not supervene.

On the other hand, the secondary membranous exudations which sometimes supervene in measles and in the late stage of typhoid appear often to be due to true diphtheria bacilli. But further investigation seems to be required as to the virulence of, and the dissemination from the secondary cases. Thus far as to the bacilli. But the skein becomes still further unraveled by the discoveries of Roux, Yersin, and Sidney Martin on the toxin of diphtheria. The first two observers separated the toxin from the bacilli, and produced by inoculation many of the symptoms of the disease, but *minus* the formation of false membrane. Whether, as Sidney Martin maintains, the bacilli at the local site of the disease elaborate a ferment-like body, which, subsequently affecting the tissues, digests them, and the products of this digestion constitute the toxins, or whether, as others hold, the bacilli themselves elaborate the toxins, is not material. The solid gain to knowledge is that for the most part the mischief is elaborated locally at the site of the diphtheritic membrane, and not to any great extent by multiplication of the bacilli themselves in the blood and other tissues. And this leads to the researches of Behring and his fellow workers which eventuated in the practical application of the methods of immunization and the preparation of an antitoxin. Since the introduction of the antitoxin, the urgency of local applications to the fauces has become lessened to a marked extent. It is said that antitoxin only neutralizes the toxin, but does not destroy the bacilli themselves. A weak mercurial solution which attacks the bacilli, though it coagulates the albumen, and an alkaline solution which favors the solution of the membrane, seem to be all that are needed. By too much zeal in local applications, one interferes with the protective action of the phagocytes, and the old corrosive applications are entirely ruled out. With continued experience the limitations of antitoxin are becoming more and more clearly understood. A careful man seeks the assistance of the bacteriologist in every doubtful case, but does not wait for his report, for he knows that the certainty of success depends on the remedy being introduced early, say within the first three days, and that the risks of its employment are insignificant. The existence of secondary infections makes him far more anxious, and he feels compelled to warn the friends on that account, but it does not prevent his applying the diphtheria antitoxin even in very grave cases.

Of the prophylactic value of the diphtheria antitoxin for those in a family or institution where there is a case of diphtheria it can be said that there seems now a large body of experience in support of its efficacy, although the period of immunity conferred does not exceed three weeks.

Tetanus.—While the diphtheria antitoxin treatment is in every way the most satisfactory of all the serum methods, the other members of this group of therapeutic measures are full of suggestion. Thus, with regard to the tetanus antitoxin, although the experiments on immunization of animals have not furnished a successful method of dealing with the severe and acute cases of human tetanus, yet some benefit has been gained in the chronic forms. It is interesting to observe that the tenacity of the combination between the toxin and the nervous tissues which was shadowed forth in diphtheria is in tetanus the dominant factor. It would appear to be the tissues of the central nervous system for which the toxin has a special affinity, and the later investigations point to the necessity of subdural injections into the cerebral substance itself, as well as into the cellular tissue, and to the employment of far larger doses of the antitoxin than the first immunization experiments suggested.

Other Specific Remedies.—In the other examples of this kind of treatment one must depend on very incomplete data. In rabies the micro-organism is unknown. But the knowledge that the poison is lodged in the cerebro-spinal tissues has led, in the hands of Pasteur and his pupils, to the most fruitful results.

With respect to the employment of antistreptococcus serum most various testimony is evident. Some cases of erysipelas and puerperal fever, and some of those most desperate cases of acute septic mischief following on infections from necropsies, have been strikingly benefited by the use of injections of this serum. Some cases of infective endocarditis appear to have improved, but a great many others have shown no response whatever.

The Treatment of Tuberculosis in the Light of Modern Discoveries.—Koch's great discovery of the tubercle bacillus in 1882 has been so far-reaching and comprehensive that the simplification which it has brought about in our knowledge and in the mode of grouping of a great body of facts seems almost incredible. The most important outcome was that it confirmed the doctrine that tubercle should be placed amongst the chronic infections and so helped the profession to realize, in some sense, the kind of enemy with which we had to deal. With respect to the tuberculin treatment of tuberculosis, it cannot be denied that the results obtained have been on the whole unsatisfactory and tentative. And when it is considered that under the most favorable circumstances both forms of tuberculin can only claim to set up fresh activity in the neighborhood of pre-existing tuberculous lesions with which fresh activity the reaction temperature is associated, it is clear that the result must be, to say the least, problematical. With localized subacute and indolent lesions such as we get in lupus we might fairly expect that such increased activity might sometimes be followed by improvement, and that has unquestionably been observed also in some cases of tuberculosis of joints. But with respect to visceral lesions there is always some risk of dissemination following this renewal of activity and of the setting up of new inflammatory action and necrosis instead of fibrosis in the lesions themselves.

The most important pathological fact bearing on the therapeutics of tubercle is the enormous frequency of unsuspected tubercle as proved by investigation after death of persons dying from other causes than tubercle. A second and equally important reflection is that there exists a tendency in the human subject to spontaneous limitation and arrest; and the third reflection is that there is an extreme frequency of local limited tuberculous deposit as compared with the generalized disease.

The teaching of pathology is that the fortifying of the general resistance of the individual is the most important indication of all. Real true advance always tends to simplification, and the great fundamental therapeutic remedies are the employment of fresh air, sunshine, of good food, and of regulated exercises. This surely is the inwardness of what has been called the sanatorium treatment. Brehmer and Dettweiler and Trudeau and Walther have taught us this.

Dr. Barlow said: It is fitting to remember that sixty years ago an Englishman—a village general practitioner, George Boddington, of Sutton Coldfield—taught, both by precept and by the results of actual experience, what were the proper methods of treating phthisis. The educational side of the sanatorium is all-important. The patient is instructed as to the importance of the disposal of sputa, and as to the methods by which a phthisical patient may live with his fellow-creatures without risk to them. Surely the imperative necessity of enlightened and unremitting medical supervision in work of this kind is self-evident. Whether there will be evolved any better method of carrying out these indications for the treatment of phthisis in its early and middle stages remains to be seen.

As to the prevention of infection, voluntary notification has been established, in Manchester and elsewhere, with very good advantage. There seems to be very little difficulty in securing disinfection of rooms after a fatal case has occurred in the abodes of the poor, and experience would seem to show that, with tact, notification of phthisis during life may be followed by sanitary inspection, and by much useful guidance as to ventilation, cleanliness, and disposal of sputum. The food supply, milk, etc., should be most vigorously inspected periodically.

The Practical Results of the Scientific Study of Malaria.—In the whole range of medicine there is scarcely a disease which illustrates the opening thesis more forcibly than does malaria. The story of the investigations of our countrymen, Manson and Ross, are fresh in memory. Up to a certain point the life history of the malarial parasite had been made clear by the observations of Laveran and Marchiavafa. The ameba-like bodies enter the red corpuscles, live on the hemoglobin, and divide into spores. The latter burst through the envelope of the corpuscle, become disseminated in the blood serum, and repeat the process of the parent organism. But other forms do not develop spores, and in some species these assume within the corpuscles a crescent-like shape. When the crescent-like bodies are observed for some minutes on the warm stage a change of shape takes place, and motile filaments are observed to escape from them. It was at this point that Manson's insight led him to join issue with the Italian observers, who looked on this stage as one of degeneration, whilst Manson claimed that it suggested another life cycle of the organism within the body of some host other than man, which host should be the means of communicating the parasite to man. That intermediate host, he reasoned, must be a suctorial insect, and predicted that it would prove to be the mosquito. Ross's investigations established the truth of this hypothesis beyond any cavil, and narrowed down the number of possible hosts to gnats of the genus Anopheles. The next inquiry was to ascertain the important facts as to the habitats of the Anopheles and its mode of life. And Ross, in the expedition sent out by the Liverpool School of Tropical Diseases, was able to show that the larvæ of these gnats were to be found in shallow pools which were not big enough or permanent enough for fish, and yet were not small enough to dry up between showers. The drainage or filling up of these pools in the neighborhood of human habitations, or systematic destruction of the larvæ by the application of paraffin, appeared to be the readiest way of dealing practically with the problem.

Malta Fever.—In the Malta or Mediterranean fever we have another illustration of how complete exhaustive pathological investigation has led to the rational separation of a given disease from every other. The discovery by Bruce of the life-history of the micrococcus melitensis settled once for all the specific nature of this intractable but not very fatal illness, and separated it entirely from typhoid and malaria.

Acute Rheumatism.—The microbic origin of acute rheumatism was strongly maintained at the meeting of this Association as far back as 1887 by Dr. Mantle, and its clinical analogies with other infective diseases have been repeatedly set forth. The recent researches of Drs. Poynton and Paine seem to have established the existence of a specific diplococcus in the blood, in the valves of the heart, in the pericardial exudation, in the joints, and in the subcutaneous nodules of acute rheumatism. From pure cultures of this organism intravenous inoculations in rabbits have been followed by clinical manifestations and by non-suppurative lesions similar to those with which we are familiar in acute rheumatism. This seems to be a real contribution to the natural history of the disease, and when we have learned something about the rheumatic toxins and about the changes which supervene upon their formation, we shall probably get a more satisfactory explanation of the action of the salicylates than is at present forthcoming, and we may hope for further light as to the treatment of the complications and refractory forms of this common disease.

The Differentiation of Meningitis.—Bacteriology has done a great deal towards the elucidation of the somewhat confused groups of meningitis. Setting aside the septic cases which arise in connection with otitis and bone disease and injury, as well as those severally dependent upon syphilis and tubercle, there remain:

1. The epidemic cerebro-spinal fever in which the characteristic organism is the diplococcus intra-cellularis.

2. The rapidly acute forms, often vertical, but sometimes cerebro-spinal, which are associated with pneumonia, empyema, and ulcerative endocarditis, in which the pneumococcus is the characteristic organism, and

3. The sporadic subacute form especially found among young children, often limited to the posterior region of the base of the brain, but sometimes also spinal, which is usually unaccompanied by any visceral disease whatever. In this form Dr. Still has isolated a diplococcus, allied to that of the cerebro-spinal fever, but with some definite differences.

There is scarcely any group of diseases in which the resources of therapeutics have been so discouraging. It is true that in the first and third of these forms there have been a certain number of recoveries, and, although for his own part he would not relinquish the use of mercury, yet it seems doubtful whether drugs have played any important part in the recovery of the successful cases.

Organotherapy.—It was Gull who, in 1873, gave the first clinical description of myxedema, and in his brief and striking paper with remarkable insight he recognized its affinity with cretinism. But Ord made an elaborate investigation, both pathological and clinical, of several cases and described the atrophic condition of the thyroid gland. And then came a wonderful series of researches. Reverdin and Kocher showed that the outcome of surgical removal of the thyroid for various diseases was the unlooked for cachexia strumapriva. Horsley proved that myxedema could be experimentally produced in monkeys by removal of the healthy thyroid. The various attempts to ingraft the thyroid failed from absorption, but presently George Murray proved that hypodermic injections of extract of fresh thyroid were followed by subsidence of the symptoms of myxedema, and finally Mackenzie and Fox showed that the gland could be equally advantageously administered when taken from the mouth. The analyses of Hutchison and others will probably pave the way to a still further simplification by indicating which are the really efficient constituents of the gland material, and some of the alternative effects in diseases other than myxedema may perhaps be explained by the unexpected organic combination of iodine which is found to be present in this gland. The relation to exophthalmic goiter, though not yet satisfactorily worked out, is clear enough to show where true lines of fruitful investigation will almost certainly lie. The investigations of Schäfer and Oliver on the suprarenal body have revealed to us the existence of an internal secretion concerned apparently in maintaining the tone of muscular tissues generally, and especially of those of the vessel walls. And although they have not yielded a cure for Addison's disease they appear to have given us a hemostatic agent of considerable local potency.

How Advance may be made in the Future.—Hitherto the solid basis of established fact has afforded a foothold, though there have been many gaps in our knowledge, but it would be interesting to forecast a few of the probable directions in which research in the forthcoming generation is pretty certain to add to the common stores. With regard to nervous diseases, it seems almost certain that some of the acute types will be brought still more into line with the specific fevers. Anterior poliomyelitis, for example, which occasionally affects two or three members of a family almost simultaneously, and which shows some striking relationships to the exanthemata, will almost certainly prove to be an acute infective disease. The nervous sequelæ and complications of the exanthemata are a mine of clinical wealth and suggestion. For they point not only to disseminated foci of cerebral and spinal hyperemia and extravasation, but also to later changes at first insidious but sometimes far-reaching, dependent on the dissemination of the toxic products of bacillary growth. It may well be that more developed clinical observation may elicit that in the long latent period which we have assumed to exist between an infective disease and its sequelæ there has been a real continuity of morbid process translatably by signs and symptoms which one day will be obvious enough. If locomotor ataxia, for instance, be, as is believed, the remote outcome of specific disease, it will be strange indeed if the latent period does not reveal some intermediate clinical and pathological changes. The great group of peripheral neuritis, toward the elucidation of which the profession is preeminently indebted to the Manchester School (and notably so within the last year) is indeed a meeting place for many etiological factors, but it is especially suggestive as showing the parallel effects produced by toxins which are the outcome of bacillary activity, and by inorganic and organic material introduced by way of the alimentary tract, and perhaps by poisonous products elaborated in the body itself by faulty metabolism.

With respect to the therapeutics of these diseases, the elucidation of their natural history has unquestionably done a great deal by teaching us what cause to remove, and so prevent the further extension of the malady, even in some cases up to a fatal issue. Still it must be confessed that some members of the group show a singular tenacity in going through a certain evolution, even when the peccant cause has been removed. This may seem a disparagement of my original thesis, but knowledge is always justified, and it is something to be able to say that, although remedies have not hitherto materially modified the process, yet that the cause having been removed we are tolerably certain that, provided there is no extension to the medullary centers, the cycle will come to an end, and that recovery will ultimately be complete. Further elucidation may yet show a definite method of shortening the morbid process. But if the more complete knowledge of the natural history of these and other obscure nervous diseases does not in the immediate future pave the way to definite antidotes for them it will at least save us from many a blunder. We shall learn to leave for a time the morbid process severely alone and to concentrate our therapeutic efforts on food and on the improvement of the general metabolism of the patient.

Can there be any reasonable doubt that we are on the eve of a fuller elucidation of cancer, and that when the history of the organism which we suspect to be behind it has been learned, then the fragmentary and isolated pieces of knowledge which have been painfully and slowly acquired during past generations will slip into their proper places like the blocks in the puzzle of a child? But if the history of previous discoveries in our science goes for anything, this, again, will be an instance of the convergence of work of experimental pathology, biology and chemistry, and of clinical medicine and surgery in their widest connotations.

(To be Continued.)

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held May 24, 1902.

The President, William B. Coley, M.D., in the Chair.

THE scientific business of the evening was opened by the reading of a paper by Dr. Joseph A. Kennefick, on The Development of Pus in the Accessory Sinuses of the Nose.

Acute Empyema of Cranial Sinuses.—These affections of cranial sinuses are, in Dr. Kennefick's opinion, increasing in frequency. More and more is it coming to be realized that when in the midst of infectious diseases symptoms of severe headache and neuralgia develop, these painful conditions not infrequently point to the development of a collection of pus in one of the sinuses in connection with the nose. There is, however, a very general ignorance even among medical men with regard to the anatomy normal and pathological of the cranial sinuses, and a corresponding lack of knowledge with regard to the symptomatology of sinus affections. These affections may easily become chronic from neglect, and conditions then develop that are extremely difficult of cure and very obstinate even to remedies affording relief. As a rule the practitioner must learn that a persistent headache yielding only to anodyne drugs when given in large quantities and returning very soon, needs careful examination to discover if possible whether there be a sinus complication.

Anatomy of Cranial Sinuses.—The accessory sinuses of the nose are ventilated air spaces in the bones of the face and head. The principal sinuses are the maxillary, the frontal and the ethmoid. The maxillary sinuses occur in the bones of the upper jaws; they have a direct connection with the nose, but as this connection enters near the top of the sinus it is very well situated for ventilation, though not well calculated to provide good drainage. The entrance to the maxillary sinus is found in the middle meatus of the nose. The cavity in the superior maxillary bone does not exist at birth but develops later; it is hollowed out by a process of osteoclasm. The roof of the maxillary sinus is formed by the floor of the orbit. The internal boundary consists of the thin plate of the nasal bone; this is easily punctured and hence the diagnosis of pus in the antrum and drainage through the nasal cavity is not very difficult. If, after this puncture is made, the nose is thoroughly washed out and pus is found to collect again almost immediately, then the antrum almost surely holds pus. If the middle turbinate bone is swollen it blocks up the usual opening from the antrum into the nose and so prevents drainage. It is possible to bring relief in these cases by reducing the congestion of the turbinate body.

Anatomy and Pathology of the Frontal Sinus.—The frontal sinuses are hollows in the frontal bone. They may be either large or small, or may, as demonstrated by dissections, be entirely absent. At times a canal exists between the right and left frontal sinus and not infrequently the sinuses consist not of two cavities, but of a number of cells joined together. The inner boundary of the frontal sinus consists of the inner table of the skull, and this is often very thin so that but a slight partition separates the sinus from the interior of the skull. The position of the frontal sinus makes it very favorable for drainage which takes place through the nose. When a purulent condition exists in the frontal sinus the gravitation of pus through the nose may lead to an infection of the maxillary sinus. On the other hand, occasionally the maxillary sinus proves the source of infection for the cavities in the frontal bone, so that purulent affections of these cavities often occur together.

The Ethmoid Sinuses.—The anterior cells of the ethmoid bone are in connection with the nose, and though it does not often happen they may become infected during the course of infectious diseases. The cells in the ethmoid bone vary in size and number and it is not always easy to judge of their exact position with regard to the nasal cavity.

Etiology of Acute Sinusitis.—Purulent affections of the sinuses may occur during the course of any acute infectious disease. They have been much more frequent of late years, because of the prevalence of influenza in epidemic form and its yearly recurrence. At times local conditions in the nose may be the cause of the development of pus. Carious teeth may lead to the development of pus in the maxillary sinuses. This occurs when pus sacs develop at the root of teeth and the contents instead of finding their way outward along the tooth itself or through the jaw, press upward and erode the lower wall of the antrum. Once a single sinus becomes infected the infection of others may occur rather easily if proper precautions are not taken.

Micro-organisms in Purulent Sinusitis.—A number of micro-organisms have been found to be actively at work in the production of pus in the accessory sinuses of the nose. Weichselbaum of Vienna and B. Fraenkel of Berlin demonstrated the diplococcus pneumoniæ and the bacillus pneumoniæ in the pus, in the antrum and frontal sinus. Of late years the influenza bacillus is the most common cause of purulent conditions in these parts. Practically all the pus micro-organisms have been found here as active factors. Among these the streptococcus and the staphylococcus aureus are the most frequent. The severity of the affection depends partly on the micro-organism at work, but mostly on the condition of the patient at the time of the infection and the anatomical conditions that prove favorable or unfavorable to the development of the affection. The diagnosis of these conditions is not very difficult if the nose is only examined carefully and if the hyperemia which exists in the nose is overcome by the use of proper astringent remedies. The history of the case is often of great service to the diagnosis. The patients usually tell of having had a very bad cold. This has been followed by great depression, malaise, pains in the head and loss of sleep. There is usually considerable nasal discharge consisting of pus and blood, though at times this is not as profuse as might be expected. Not infrequently there is complaint of pain at the back of the eye. Neuralgia is a common symptom and there is tenderness in the soft tissues over the affected sinuses. When the congested tissues of the nose are caused to shrink by means of cocaine the exit of pus from the sinuses can often be seen. Transillumination promised some years ago to be very useful in the detection of the pus in the accessory sinuses of the nose. Further use of this method of investigation, however, has shown that so many circumstances arise to modify the passage of light that this method can be used only as a confirmatory symptom.

Localizing Symptoms.—When the antrum alone is affected the neuralgia is apt to take the form of a face-ache that may be attributed to a bad tooth. When the frontal sinus is affected, there is often supra-orbital neuralgia. At times the skin is distinctly reddened over the affected area. Even when there is no reddening of the superficial tissues there will nearly always be tenderness over the affected sinus.

Treatment of Pus in the Accessory Sinuses.—The indication in these affections is for drainage and surgical cleanliness. The purulent secretion, as it appears in the nose, must be frequently removed by warm alkaline antiseptic solutions. The toxins that find their way into the system by absorption from the mucus lined cavities must be eliminated by means of the skin and the alimentary canal. The irritation of the purulent fluid in the nose frequently causes a condition of persistent hyperemia in the turbinate bodies, and this adds to the difficulty of drainage from the sinuses. By applications of cocaine and suprarenal extract, hyperemia of the turbinate bodies should be relieved and drainage favored. If the anterior end of the turbinate body proves obstinate in its tendencies to recurrent hyperemia, then it may be removed. As a rule no operation is needed in the treatment of these sinus affections, if only the natural means of drainage are properly encouraged.

Twelve Cases with Recovery.—Dr. Kennefick has had twelve cases of purulent collections in the accessory sinuses during the past winter. All of them had been under the care of general practitioners before coming to him for treatment, and in only two of the cases was the real nature of the affection recognized. The first case had a very characteristic history: the patient had suffered from a very severe attack of grip, in which the nasal discharge was so profuse that it proved unbearable. It was checked by plugging the nostrils. Shortly after an intense headache with neuralgia developed. The skin over the frontal and maxillary sinuses became very tender, tense and red. Morphine failed utterly to quell the pain and for three days the patient had no relief and no sleep. As soon as the tissues of the nose were caused to shrink by means of cocaine and the openings in the sinuses were made free to discharge some of the purulent material, relief was at once afforded and the patient slept for six hours. By keeping the nose in proper condition and by the removal of the pus promptly when it began to accumulate, so as to prevent irritation of the nasal tissues that would increase the hyperemia of the turbinate bodies and interfere with drainage, the patient continued to improve. No further operative interference was required, and the patient went on to make a complete recovery at the end of some weeks.

Frequency and Danger of Sinus Complications.—Dr. Howard Lilienthal said that he has seen a number of sinus complications in recent years. Theoretically, at least, the degree of danger would seem to depend on the kind of infection that has taken place. The ordinary pus cocci, or the pneumococcus can probably be left to nature's care, but the streptococcus would be more apt to cause serious trouble and require prompt evacuation. A bacterial examination of the pus, then, in an early stage of the disease seems very desirable and would make clear the prognosis of the case. With a virulent streptococcus present in these cases it will not be surprising if considerable tenderness and infiltration of the soft tissues would develop; even erysipelas will occur in some cases.

Dr. Kennefick said in reply to a question that he had once seen erysipelas develop in the facial tissues of a patient suffering from a purulent sinus affection. Its origin had been traced to a streptococcus infection of the superior maxillary sinus. Streptococcus infections of the antrum are more frequent than of other sinuses, and Weichselbaum of Vienna insists that erysipelas takes its rise from the presence of streptococcus within the antrum much more frequently than has been thought. There does not seem to be, however, materially greater danger in the streptococcus than in the staphylococcus infection of the sinus. Streptococcus infections, in Dr. Kennefick's experience, have not run an especially acute course and nature with the aid of proper drainage through the nose has proven amply able to take care of them.

Posterior Wall of Frontal Sinus Absent.—Dr. Charles Gibson recalled a case reported to the Harvard Medical Society some two years ago in which the posterior wall of the frontal sinus was formed by the dura, the inner plate of the frontal bone being absent. In this case infection extended through the membranes of the brain and set up a severe meningitis, to which the patient succumbed. Dr. Gibson considers that this anomaly may be more frequent than has been thought and that the possibility of its occurrence should always be kept before the mind of the surgeon when operating upon the frontal sinus. The inner table of the frontal bone, when present, is often extremely thin, and it is an easy matter to penetrate it if the surgeon is careless in his manipulations.

Function of the Frontal Sinus.—Dr. Kennefick said that the principal function of the sinus in the frontal bone seems to be to provide a resonator for the human voice; many of the best qualities of the voice come from the added effect of this air chamber. Besides, of course, the presence of the cavity gives lightness to the skull. Its functions, whatever they are, are not important for life or comfort; when the sinus is obliterated there is no apparent difference in the patient's feelings. When pus occurs in the frontal sinus and it becomes necessary to open it, the cavity is according to the present custom of specialists packed thoroughly with gauze and allowed to heal from the bottom. At times there remains a rather unsightly scar with a depression of the skin at the point where the incision has been made. For the correction of this paraffin is injected beneath the skin and has proved an excellent means of raising it up to the normal level, thus getting rid of the unsightly depression.

In answer to a question Dr. Kennefick said that the function of the sinuses with regard to the human voice seems to be to aid in placing it. The auxiliaries thus provided give those special qualities to the voice of orators and actors that enable them to use their voices to the best effect.

Pus in the Sphenoidal Sinus.—Dr. Kennefick reported the case of a physician who suffered from a severe attack of grippe last January. Afterward there was almost unbearable headache accompanied by mental symptoms. During the summer the physician was better, but in the autumn many of the old symptoms returned. Clumps of pus were coughed up, and after careful examination of all the possibilities of the case it was decided that the sphenoidal sinus was probably affected. The middle turbinate body was removed and with a Bryan gouge the sphenoid cells were opened up. An amount of cheesy and stinking pus was evacuated and the sinus thoroughly washed out. The patient continued to be delirious for some days. An opening was then made beneath the eye and all the sphenoidal cells were cleared out. The patient was delirious for some time after, but was gradually restored to health and has been able to take up his practice once more.

Portable Operating Table.—Dr. Howard Lilienthal presented a portable operating table. It is not as light as the tables on the market now but it enables the operator to obtain any position including the kidney position, and can readily be carried from one place to another. The head may be raised or lowered so as to put the neck tissues on the stretch for the performance of operations in the cervical region. The table weighs altogether only thirty-seven pounds and the parts are so arranged that there is absolutely no danger of its failing to bear any weight; it has been tested up to 400 pounds, and, besides, it is so made as to wear well.

Dr. Coley thinks that this table is an eminently practical profitable table and the best of its kind that he has seen. The ease with which the Trendlenburg and kidney positions can be obtained and the movability of the head rest, make it especially suitable for operations of any kind.

Dr. J. B. Walker said that the table represented some of the best modern ideas and would undoubtedly prove an important addition to the surgeon's armamentarium and make it possible for him to do at short notice in the dwellings of patients operations about which there has been hesitation.

Supposed Carcinoma of Stomach.—Dr. Gibson then presented the details of a case of supposed carcinoma of the stomach. All the symptoms pointed to the existence of a malignant neoplasm of the gastric wall. Gastric analyses showed the absence of hydrochloric acid and the presence of distinct amounts of lactic acid. Repeated examinations were made, always with the same result. A large movable tumor could be felt in the region of the stomach, and all the conditions justified an exploratory operation. The patient was not much emaciated, and her age, thirty-three, justified the hope that if a carcinoma were present a radical operation might be successfully performed. After laparotomy, the only gastric condition found was a dilatation of the stomach of no considerable extent, but evidently sufficient to delay the emptying of the viscus and the consequent disturbance of secretion that had been noted. Two floating kidneys were found and there was a distended gall bladder. Here and there in the pancreas hard spots could be detected by palpation, and the general condition seemed to be due to a combination of all of these complications.

Cancer in Earlier Years.—Dr. William B. Coley said that age can not be considered an important factor in deciding as to the presence or absence of a carcinoma. Youth is no bar to neoplastic degeneration of malignant character. He has recently operated upon cancer in the breast of a woman of thirty-five, the first symptoms of which had been noted two years before when the woman was scarcely thirty-three. He has recently seen a cancer of the breast in a woman of thirty-two who had suffered two years before from a miscarriage and had since developed an indurated condition of the breast. This was thought to be inflammatory in origin. After microscopic examination it proved, however, to be carcinomatous. Dr. Coley has recently seen another case, in which though the patient was only thirty-two, the axillary glands were already involved as the result of the presence of a carcinoma in the breast.

Dr. Gibson said that there is no doubt that carcinoma is occurring at an earlier age than before. The statistics of Board of Health, of life insurance companies and hospitals, showing the deaths from carcinoma by decade all confirm this opinion. Statistics that show the social conditions of patients suffering from malignant disease also seem to point out that it is becoming more frequent among the better classes. Dr. Gibson has recently seen a case of carcinoma of the stomach in a patient under thirty-five years and carcinoma of the cecum in a patient only thirty-three years of age.

Dr. Coley said that he had recently seen two cases of carcinoma of the vagina under twenty-five years. The tumors were inoperably large and one of them had so infiltrated surrounding tissues as to forbid all hope of relief by surgical intervention.

Finney's Gastroduodenostomy.—Dr. Howard Lilienthal said that, persuaded by Dr. Finney's excellent presentation of the subject at a recent meeting of the Harvard Medical Society, he had tried gastroduodenostomy, according to Finney's method, and had found it eminently satisfactory. The patient had suffered very severely from gastric symptoms which proved utterly obstinate to all ordinary treatment. Finally persistent vomiting developed and emaciation became so pronounced as to make operative interference absolutely necessary. The pylorus was found to present a very rigid, almost cartilaginous feeling, but notwithstanding this, after the adhesions were freed, the operation did not prove difficult. The patient recovered without incident and has done very well since. All the stomach symptoms have disappeared and a marked gain of weight is recorded.

Success with Coley's Fluid.—Recently Dr. Lilienthal has had under his care a man of forty-three years who presented a tumor on the sixth rib of the left side. This crackled on palpation and was thought to be due either to a cold abscess, or to syphilis. When opened serum and blood were found in a cyst of the rib. Another cyst occurred on the rib in another part, and resection showed that the pleura also was involved and that all of the tumor could not be removed. Microscopic examination of the specimens showed that the tumor was a sarcoma of the pigmented variety and of the worst possible prognosis in man. The tumor seemed to be primary, though pigmented sarcomas of this region are rare and are usually secondary to sarcoma of some pigmented tissue. As the case seemed hopeless injections of Coley's fluid were tried; the general condition at once began to improve, although the man had been in a severe state of cachexia. The tumors began to disappear and now for months there have been practically no signs of them. The patient may not be cured and there may be a recurrence later, but certainly the use of the mixed toxins seems to have afforded a wonderful measure of relief, practically curative for the time being. Dr. Lilienthal said in conclusion that if he should have a case of malignant inoperable tumor himself he would certainly want Coley's fluid used, being sure that it would afford one more chance for prolongation of life and relief from annoying symptoms.

Large Omental Hernia.—Dr. John B. Walker reported a case in which operation was done for the radical relief of a large omental hernia in a patient weighing over 300 pounds. The heart was too weak to justify the use of a general anesthetic, and the operation was done under local anesthesia. Dr. Walker gave ten minims of Magendie's solution before the operation, and used Schleich's No. 2 solution for the production of local anesthesia. An incision ten or twelve inches in length was made in the skin and the bleeding points were clamped. When the iliohypogastric nerve was reached an injection of some drops of the solution was made into the trunk of the nerve. There was some complaint when the sac was being tied, but otherwise the patient suffered very little annoyance. Altogether the operation lasted about forty-five minutes and was very satisfactory considering the risks that would have been run by general anesthesia.

Physician as Patient and Local Anesthesia.—Dr. William B. Coley said that he had a physician friend who was operated on for the radical cure of hernia at Johns Hopkins under a local anesthetic, and who said that he would not want to undergo the ordeal again. The physical pain is only very slight, but the mental strain is so great as to render the patient extremely nervous not only at the time but for several days afterwards.

Dr. Waterman said that the operations for hydrocele and varicocele may very well be done under local anesthesia. Patients make no complaint and say very freely afterwards that they have felt no pain during the operation. Many patients who will object to operation if it involves the necessity for a general anesthetic are easily persuaded to allow operation under local anesthesia. Very little cocaine is needed and a solution of one per cent., or one of Schleich's preparations, will enable the surgeon to do careful and very satisfactory work without causing the patient much annoyance. The field for the use of local anesthesia is larger than has been imagined, and the general practitioner particularly will come to realize that many small operations can, with its assistance, be done without the necessity for an assistant to help him in the work.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held June 4, 1902.

Lucius W. Hotchkiss, M.D., in the Chair.

Report of a Case of Cholecystectomy and Presentation of Specimens.—Dr. John F. Erdmann reported the case of a female, sixty years of age, who came under his observation May 22 with the following history. During the past five or six years she had had a sense of uneasiness in the right hypochondrium and epigastric region. She was constipated, but had no clay-colored stools. She had never been jaundiced. There was some pain in the back, in the lumbar region, extending to the right scapula and occasionally transmitted beyond. She had had frequent attacks during the past five years which were so severe as to require the use of morphine; two days after the injection of morphine the pain would subside. On one or two occasions she had vomited. The patient was well nourished, with a tendency to corpulence. Upon examination the gall-bladder was found to be exceedingly sensitive but Dr. Erdmann thought he could make out a small mass the size of a mandarin. From the history given, and the result of his examination, the case was supposed to be one of cholelithiasis, and so, on May 31, he operated under ether and gas anesthesia. Palpation revealed a rather symmetrical mass, superimposed on which was a tongue-shaped mass; this was diagnosed as Ridell's lobe over an enlargement of the gall-bladder. The exposure was made through the right rectus, coming down upon the gall-bladder and Ridell's lobe. The patient being in good condition, and cholecystectomy being indicated because the gall-bladder was filled with stones, he continued the operation, meeting with some difficulty in separating the peritoneum from the muscular structure, and also the gall-bladder from the peritoneal coat of the liver. A ligature was passed around, and the gall-bladder excised. Extending from the foramen of Winslow to the left lobe of the liver were a number of stones in the ducts, about twenty-five in number. The cystic duct was removed, the cut in the common duct being sewed up with the exception of an opening for the insertion of a tube. The patient's temperature was at that time 100.2° in the rectum, and her pulse 85. No bile had been discharged from the wound since the third day.

Valid Objections to so-called Christian Science.—The Rev. Andrew F. Underhill, Rector of St. John's Church, Yonkers, read this, the paper of the evening. In endeavoring to define it, he said that, in a more or less definite way, we learned that Christian Science was a philosophy holding entirely to the subjective theory of the universe; that it was a religion whose creeds exalt the importance and all-sufficiency of self, making the subjective Ego the center of all phenomena, equal with and not to be differentiated from God, yet claiming to be founded in the spirit and true doctrine of Jesus Christ; and that it was also a society of professional healers, who rely solely on the force of human psychic power, subjectively exerted, and untranslated into bodily or mechanical action.

Is Christian Science Christian?—In answer to this question, he said that, according to the chief apostle of this cult, the central truth around which the whole system revolved was the principle that the only real thing which exists in the whole universe is mind or spirit. Everything objective was an illusion. Matter was nowhere really present as an actual substance. Material phenomena had no being save as projections of the mind. There was no world outside of consciousness. Everything we saw was merely the product of our thought, and external agencies were imaginary, not real. The earth, as it was known to us, dies, and actually passes away when we shuffle off this mortal coil; for it never has been save as a conception mirrored in the mind; hence, things as concrete were unthinkable. The properties of matter were non-existent. Weight, heat, cold, affinity, attraction and repulsion, length and breadth, size and bulk, quality and quantity, as attributes of a created substance external to consciousness, were an impossibility. Pleasure and pain, then, as the result of anything exterior to the mind, were simply not. There was no such thing as physical disease, defect, or shortcoming. Imperfection was contrary to reason. It was defective thought on our part that made this illusory image. Everything was perfect; nothing was wrong or out of gear—we simply imagined it so. Sin, actively considered, was defective thought—not a moral and physical action or state, limited in time and space. It was a mere phantasma, that could be dissipated by simply conceiving it to be nonexistent. Now, all this system was as far from the ideas which underlie the teachings of Jesus as was the orbit of the earth from the furthest fixed star. It only accounted for half of the world, for half of man, and involved itself in every contradiction and absurdity. Furthermore, the belief in it was a bar to all progress, to all incentive for physical and energetic action. It superinduced a lazy and contented calm which allowed the world and all things in it to drift. Again, in the realm of conduct and ethics, the practice of Christian Scientists did not coincide with the teachings of the Master. According to their strict theory, no physical care was to be given to the sick nor was sympathy, as we understand it, to be offered to the afflicted. Even the knowledge of disagreeable things was to be avoided. The sufferer was to be told that he did not suffer, and not for a moment to confess to himself that he could suffer. What he took for bodily suffering was nothing but mental error. We, who believed in the love and power of the Son of God, were taught that no man is all sufficient to himself; that the finite mind cannot contain the infinite God; that material things are realities. Further, on the doctrinal side, Christian Science was in direct antagonism with nearly all the statements of the Apostles' Creed. In view of these facts, what was there in Christian Science that was even remotely Christian?

Is Christian Science Scientific?—The definition of science was: "Knowledge gained by systematic observation, experiment and reason; knowledge, co-ordinated, arranged, and systematized." First of all, the foundation of this so-called science was a sweeping assumption, not a deduction from facts gathered and systematized; and it was an assumption that appeared on the face of it to be contrary to the common experience and universal belief of mankind. Its basic doctrine, that the universe is entirely subjective, that mind is its only constituent, and that there is no such thing as matter objectively considered, the Christian Scientists themselves did not attempt to justify, except by assuming it, and by pointing to the fact of certain cures accomplished without the aid of drugs. Then, by a curious fallacy of reasoning, they proceeded to teach that because some cases of disease were perceived to get well without the use of drugs, therefore, all cases might be thus cured, since the reality of mind and the unreality of matter were demonstrated in the instances where such recoveries had taken place. But they involved themselves in a very curious inconsistency when, by denying the efficacy of medicines to heal, they could not escape the fact that in certain doses drugs which are poisonous, in every instance, without exception, if partaken of, whether consciously or unconsciously, would surely kill. Again, in proof of their theories, they were not willing to submit to any test of their science which would be scientific and acceptable to all men. They have apprehended, in a dim way, a certain part of the truth; but by assuming that they had apprehended it all they were led into the gravest and most serious error. To conceive that all perceptions and objective phenomena were the creations and products of mind was to assume that consciousness and idealization were states existing prior in time to the objective phenomena supposed to surround us. If mind in the world and in the human being were all, then it must have within it, ready-made, the ideal conception of each of the so-called material forms of nature from the beginning. Mind, then, within itself, must be the perfect embodiment of all facts and all possibilities of the universe. It precedes all things that seem; and from it all things are projected. It apprehends them subjectively before it creates them objectively. The facts we were able to glean showed us that the very reverse of this was true. Ideas do not appear in our consciousness until extraneous things have produced upon us sensations which, in their turn, give rise to the intellectual conception of the objects that produce them. The growth of perception in infants showed that the development of mind takes place through sensations from without—that the intellectual faculties are not the force from which all things have their being, but that they are the products of growth, produced to a large extent by environment. The point where Christian Science had duped its votaries was this: It had confused the category of diseases that are present through an emotional or nerve-disturbing cause with the category of diseases that are present through external causes; and it had placed all manifestations of pain and sickness under the former. The objection to the Christian Science practitioner was, that he is uneducated in the laws of physiology, pathology, and the diagnosis of disease. He refused to gather, compare, systematize, and analyze facts, or to deduce any system of knowledge from them. He had the same diagnosis and the same remedy for all ailments, no matter what their source or present development; and, therefore, his pseudo-science was based on the deification of ignorance. The whole progress of the world had been accomplished by patient and unceasing endeavor, by study and comparison, and sifting, and selecting. When the world had departed from this method the result had always been disaster, suffering and anguish. Sober judgment in all the affairs of life leads to contentment and happiness; while unbridled emotion and imagination, unrestrained by the appreciation of realities, leads to the very opposite. Christian Science was the product of a misdirected emotional state. It was not even remotely scientific, and it was devoid of common sense.

Its Results—Ethical and Moral.—The speaker said he had endeavored to show that Christian Science, in its intrinsic aspects, as a religion and philosophy, was neither Christian nor scientific, and its axioms, postulates, and propositions were faults. He would next call attention to the modes of its outward manifestation; compare with them the facts of our religion and modern science which are opposed to it, and indicate the disaster and unhappiness it would cause if it should become generally current and be allowed to prevail. Within the past few years it had increased more rapidly than any other organization which pretends to teach religion or advocate any particular method of healing. Its large pecuniary holdings were evidence of its determination to stay. In 1898, it had 221 churches; in 1901, 600, with 12,000 ministers and healers, and 100,000 adherents. Its manifestation, as a religion alone, was perhaps not so serious in its probability of harm, for, divorced from the universal healing power of mind, it had but small foundation to stand upon. The fact remained that a large proportion of its adherents had become so by reason of their belief that they had been cured of some bodily ill, yet it was accomplishing a good deal of evil in the moral and spiritual sphere. While claiming to be the religion of Jesus, it had asserted that its principles were discovered and revealed by a woman but thirty-five years ago. By teaching individuals that man cannot depart from holiness, and that when he sins he must assert that there is no such thing as sin, it was barring the way of all moral progress; for, it was only by recognizing present shortcomings, defects, and needs that a better state of morals was obtained in the future. For the man who was entirely satisfied with himself and his condition there was absolutely no hope of moral improvement. The effect of Christian Science on morals, in general, was, therefore, pernicious, but its evil influence was most marked on the young, by teaching them to deny the evidences of the physical senses, which were given by God to convey impressions to the mind. This method fostered from the beginning the fundamentals of hypocrisy and deceit. Christian Science was only a religion for the well-to-do; it had no message for the poor and afflicted, no care for the sick, except to tell them they do not suffer; it had founded no charitable institutions; it maintained no free hospitals, but demanded and wrested payment of the "almighty dollar" for all the boons its priests and priestesses might confer; it was shamelessly opposed to all Christian altruism, and struck down the divine principles of pity, mercy and unselfishness.

The Results, Physical and Hygienic.—It was well to understand how well qualified the professors of this cult were for practice in the cure of disease. A woman gave an account in the New York Herald of how she took a course of eight lectures from a well-known exponent of this "science." The series was attended by forty students, each of whom received a diploma after having paid one hundred dollars. The writer said that, at the end of the eight lessons, she knew no more than at the beginning! How did this compare with the years of study that a reputable physician must give before he was deemed competent to begin to practise? It was hardly possible for us, who had lived in this enlightened age, to realize what the giving up of the benefits we had attained through the progress of modern science, would mean. The substitution of the processes of Christian Science healing would throw us back to the conditions which exist among the lowest and most depraved of savage tribes, whose method of treating disease is exactly similar in theory to that of the modern fanatics. The practice of exorcism was common to all primitive peoples. The establishment of quarantine, efficient sewage systems, sanitary plumbing, etc., had enormously decreased the death rate. The plague, cholera, typhus, and yellow fever, diphtheria, typhoid, consumption and other maladies were no longer the awful menaces to life that they formerly were.

One might continue at great length to show all that had been gained through the agency of modern science. Could we afford to allow the profession of medicine to be assailed, and to have its means of well-doing threatened when we know that it should be protected for the sake of all it had procured for humanity? And could we continue to allow the health of the community to be menaced by the ridiculous incompetency which would overthrow these benefactors? This insufferable movement, the speaker said, in its manifestations as a healing art, or profession, was a menace to the community; it was a menace to all, and the same law which maintained quarantine and municipal health precautions and cleanliness should put down with ruthless hand this pseudo "science" which, under a religious guise, had committed so many shocking murders. We could, perhaps, pass over the fact that a man is acting the part of a delusionist, if the delusion concerns no one but himself; but it became a more serious matter when his aberration of mind affected the lives and happiness of others in the community. When he subjected innocent and defenseless children to the horrors of neglect and to the miseries of pain and sickness, without an attempt at intelligent alleviation, the time for pity had passed; we should hold him up to the scorn and execration of all who think aright, and visit him with the penalty his wickedness deserved.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 15, 1902.

The President, Robert F. Weir, M.D., in the Chair.

THE scientific business of the evening consisted of a symposium on

VARIOUS FORMS OF VERTIGO.

Stomach Vertigo.—The first paper was read by Dr. Charles Sumner Fischer, who described stomach vertigo as it was originally outlined by Professor Trousseau of Paris. The symptoms given by Trousseau in his classical description are those to which every writer after him must refer in order to appreciate just what Trousseau intended. His patients were taken with a whirling sensation in the head, frequently saw things revolving about them and often had a vision of a large black wheel constantly revolving. These vertiginous sensations were accompanied by a sense of great fear, as of some impending disaster. There was no loss of consciousness and no true illusion. Patients realized that the things seen were not actually existing, but were only due to their own pathological condition. These true vertigo symptoms were accompanied by pain in the epigastrium in some cases, which occasionally radiated into the back. Not infrequently there was a sense of burning at the pit of the stomach and an uncomfortable feeling of pressure over the stomach region. Usually there was constipation, but at times diarrhea was found. Nearly always there was a sensation of nausea following an attack. The symptoms might come on after a heavy meal, but sometimes they occurred on an empty stomach.

Pseudo-stomach Vertigo.—While the classical description of stomach vertigo goes back to Trousseau's time, many cases have been described to which the name stomach vertigo has been given without due reason. Any vertiginous sensations occurring in a patient suffering from indigestion are apt to be attributed to gastric vertigo. The important points of Trousseau's symptom complex are the sudden onset, the intense dizziness and the feeling of impending disaster. Sometimes these symptoms occurred even in Trousseau's experience in persons in whom there was no actual gastric disease. In his time, too, it must be remembered that gastric disease was a much more comprehensive term than at present and included all subjective sensations in the stomach region, while in these later days, objective symptoms are required for the diagnosis.

Chronic Gastritis and Vertigo.—It is extremely interesting to discuss what the true significance of Trousseau's symptom complex may be in the light of our present knowledge of gastric disease. There are some authorities who say that all chronic stomach trouble is liable to complication by vertigo. Most of the gastric specialists insist that it is only when there are secretory disturbances that vertigo becomes prominent. Boas, however, says that vertigo always occurs with disturbances of the gastric motility rather than secretion. Some good authorities say that gastric vertigo is quite frequent, others find it rather uncommon, but in recent years there is a growing feeling that vertigo even in stomach cases is always associated with some eye or ear lesions, and these will be found if looked for with sufficient care.

Mechanism of Stomach Vertigo.—In general it is usually said that stomach vertigo is due to reflexes carried through the vagus nerve. It is not known, however, how these reflexes produce their effects. It is thought that they may occur by a nervous impulse that reaches the labyrinth. Leube saw a case in which vertigo always followed a rectal examination, or even pressure upon the epigastrium. Many stomach specialists have seen vertigo follow the introduction of a stomach tube. There are said to be nerves from the lower cervical ganglia, which supply certain sympathetic fibers to the vertebral arteries. These arteries by their branches supply the labyrinth with blood.

Auto-intoxication and Vertigo.—Professor Bouchard of Paris introduced the suggestive idea of auto-intoxication into medicine. It is possible that vertigo in gastric affections may be due to the absorption of toxic products from the digestive tract. It is evident that there is no possibility of agreement as to whether secretory or motor factors influence the more in the production of vertigo. Hypochlorhydria and hyperchlorhydria have both been found in cases of well marked vertigo thought to be due to the stomach. In some cases with considerable motor disturbance, no vertigo has been seen, while in some cases where but slight interference with gastric motility existed a notable degree of vertigo has occurred. There seems always to be an additional element in the etiology of the affection besides the gastric disturbance present.

Neurotic Factors in Vertigo.—Trousseau admits that in his cases the patients improved under the administration of a general tonic. A study of his cases shows that all of them contained neurotic elements. Vertigo usually occurred about the time that other neurotic symptoms became prominent in the case. In some cases there had even been some tendency to vertigo before gastric symptoms were noted. It is well known how readily a neurotic condition may lead to atonic gastritis with disturbance of the secretions and of the motility of the stomach and hence with the production of auto-intoxication. It seems probable therefore that when so-called stomach vertigo occurs it is rather due to a combination of all these factors and not to any one of them. In Trousseau's cases attacks were sometimes precipitated when patients looked at a revolving object, so that autosuggestion would seem to play a rôle. The occurrence of nausea and vomiting with eructations does not necessarily prove the direct influence on the stomach. There is rather a vicious circle of pathological conditions which culminates in vertigo.

Other Nervous Symptoms.—Vertigo would seem to have been attributed to gastric causes on rather uncertain grounds in the past. It is often associated with other nervous symptoms. Vertigo and agoraphobia are not infrequently found in the same subject. The imperative idea that causes agoraphobia is, however, not at all associated with the stomach or any disturbance of it. If there is any connection between vertigo and gastric disease, this would seem to be due rather to intoxication than to any direct reflex running through the labyrinth. When vertigo occurs it is associated wth any form of a stomach disease and not necessarily with a special type.

Tympanic Vertigo.—Dr. William P. Brandegee said that vertigo is not the only symptom of middle ear disease, but is usually associated with tinnitus aurium and sometimes with some deafness. It is well known that vertigo may occur where there is considerable depression of normal atmospheric pressure as at a great height or where the pressure of the external air is very much increased as in caissons. The vertiginous symptoms in these cases are due to disturbance of the pressure on the drum and interference with the normal circulation. A not infrequent source of tympanic vertigo is a congestion of the Eustachian tube, or hypersecretion of its mucous membrane which interferes with the ventilation of the tympanic cavity. Inflammatory disturbances in the Eustachian tube are easily communicated to the middle ear and this by affecting the labyrinth may lead to vertigo. The direct cause of the vertigo is an increase of labyrinthine tension. This increase is due to pressure on the oval window from adhesions of the stapes. The main source of the symptoms is congestion of the tympanic cavity. The prophylaxis against this is frequent inflation through the Eustachian tube, especially by means of the catheter. Sedative applications to the throat and nose and especially to the orifice of the tube, when active hyperemia is in progress, produces relief of symptoms. Strong atomizations should not be used as they may easily increase the condition by adding to the irritation. When the vertigo is very severe and the symptoms acute, the drum may be set at rest by a Blake paper splint. This is especially to be recommended after rupture of the drum, when there are coincident catarrhal conditions. The outer surface of the drumhead may be washed with antiseptic solutions. For this purpose bichloride solution—1 to 8000, or double that strength is better than the milder antiseptic solutions, such as boric acid. It may be necessary, where slight purulent conditions exist and cause tympanic vertigo, to remove the ossicles or curette the walls of the tympanic cavity. The decision as to the extent to which operative interference may be advisable must be left to the surgeon.

Adhesions of Eustachian Tube.—When the walls of the Eustachian tube are adherent, these adhesions must be broken up. For this most otologists use a whalebone bougie introduced through the Eustachian catheter. In Dr. Brandegee's experience, however, Deuel's method, employing electrolysis for the gradual resolution of the adhesions, seems the better way. In general it must be remembered with regard to tympanic vertigo, that there are many forms of the affection, due to many different causes and patients must be treated individually according to the indications of the special cases.

Vertigo in Neurology.—Dr. Pearce Bailey said that vertigo occurs not only in connection with organic diseases of the brain, but also in functional neurotic conditions and even in certain toxemias. Toxic vertigo, due to the use of tea, coffee or tobacco to excess, is well known. The significance of the symptom complex is often missed. Potassium iodide when used in large quantities in susceptible patients, sometimes causes an extreme form of vertigo. The patient may even stagger and the vertigo may be accentuated by all changes of position. The vertigo is due to an idiosyncrasy, but seems to occur especially in those cases which are not syphilitic or in which a former syphilitic process has gone beyond the time, when specific treatment would be of any service.

Neuroses and Vertigo.—In neurasthenia and hysteria, vertigo or dizziness is very frequently complained of, but is hard to demonstrate. The symptom is intensified by excitement, or whenever the patient is allowed to talk much about it. Even at the moment of its existence patients may be able to walk a chalk line, or be able to stand perfectly well with the feet together and eyes closed. At times vertigo, however, is an objective symptom in these cases and may be due to degenerative changes in the blood vessels. Hysterical hemiplegia is liable to be characterized by vertigo. There is a sort of pseudo-Menière's disease, which is badly borne by patients. The giddiness in these cases is intensified by introspection. Most people have certain giddy feelings at times, and these in individuals prone to accentuate all their feelings, become imaginarily severe attacks of vertigo.

Organic Disease in Vertigo.—Vertigo occurs as a symptom of brain disease when there is some interference with the centers of equilibrium in the medulla or cerebellum. The cerebellum, especially, has for one of its focal symptoms vertigo. It is practically impossible, however, to localize the part of the cerebellum in which the lesion exists. There is any number of illustrative cases in the literature in which, despite the most careful diagnosis, surgical intervention has proved that the localization was wrong. Only one symptom is especially reliable in this matter: if deafness occurs on one side, then this represents the lateral localization of the lesion. Other cranial nerves may be affected almost indifferently, some on one side and some on the other, no matter what the position of the lesions.

General Paralysis and Vertigo.—This important disease is increasing very much in metropolitan life in recent years, and it is desirable for the general practitioner to bear in mind that one of its earliest symptoms is apt to be vertigo. The disease rarely begins without this symptom. Commonly the patient complains of giddiness, as well as a certain loss of memory while his friends begin to notice lapses of intelligence as well as of memory. Usually the vertigo of later stages of general paralysis is accompanied by the characteristic apoplectic form attacks of this disease. The vertigo is then due to the progressive degenerative changes in the brain which are found in general paralysis. The differences in the development of this symptom are due to the part of the brain that happens to be primarily affected.

Apoplexy and Vertigo.—Vertigo constitutes one of the most valuable preliminary signs of a stroke of apoplexy. Sometimes, to slight extent, it occurs for months beforehand at irregular intervals. Sometimes for a few days before an impending seizure it constitutes a most distressing symptom. Frequently this gives due warning to the patient of the fact that the stroke is about to occur and at times allows of the employment of proper prophylactic measures to delay the occurrence. At least it furnishes opportunity for the taking of proper precautions with regard to temporal affairs and the necessity for having a companion when on the street.

Brain Syphilis and Vertigo.—Vertigo often precedes the development of the severe symptoms of a syphilitic process in the brain. It may for a long time be the only symptom of the affection and may prove a valuable hint for the institution of proper therapeutic measures. In cases with a syphilitic history the occurrence of dizziness without any other physical condition to account for it should lead to the suspicion of the existence of some syphilitic lesion in the brain. The therapeutic test will decide as to the justice of the suspicion.

Vertigo and Eye Conditions.—Dr. W. B. Marple said that when vertigo occurs in connection with visual disturbances it is practically always due to paresis, or paralysis of the muscles of the eye. This causes the well-known diplopia and the occurrence of two images in the visual field, giving the patient the sensation of unsteadiness, or dizzy feeling, that may be even vertiginous in character. Double vision may occur, however, without vertigo. When the patient is suffering from diplopia he is apt to present himself holding his head in some peculiarly strained position in order to avoid the annoyance of the double vision. Vertigo does not occur so much when the diplopia is very marked, that is, when the visual axes are very widely separated by the muscular disturbance, but on the contrary when they are but little separated. The closing of one eye and the continuance of the vertigo is not a sign that it may not be due to the eyes. If the affected eye be closed alternately with the well one, some judgment as to the visual factor in the case can be obtained. Eye vertigo is usually not severe, though Dr. Marple has seen it occur to such an extent as to bring on nausea and even vomiting.

Treatment of Eye Vertigo.—Vertigo from the failure of muscle balance should be treated by an exclusion glass and by every other possible means before an operation is suggested. When vertigo occurs in neurotic subjects and every other organ has been thoroughly tested, it will sometimes be found that the correction of even slight errors of refraction will relieve the patient. This correction should be made under a mydriatic, especially in neurasthenic patients. Refraction errors should be corrected before anything is done for muscle conditions that may be detected. Dr. Marple never saw a case in which he judged an operation for the eye conditions causing vertigo to be necessary. The disturbances due to muscles are, in his opinion, overestimated.

Etiology of Stomach Vertigo.—In discussing the papers Dr. Max Einhorn said that vertigo may be due to many causes. Formerly gastric catarrh was a much more comprehensive term than it is at present and many conditions were so described that had no necessary connection with true stomach disease. Dr. Einhorn is confident that at times vertigo is due to gastric conditions. It is but proper to assume this when the correction of a stomach lesion leads to the disappearance or relief of the vertigo. Dr. Einhorn has found that secretory conditions are especially fruitful of vertigo. The hyperacidity of nervous indigestion that may be corrected by means of vichy or some other alkaline remedy is not infrequently directly associated with the vertigo. The alkaline drink then prevents its occurrence. It would seem in this case that the vertigo was not a symptom of auto-intoxication, but a reflex. When there is a deficiency of stomach secretion the presence of rough particles of food resting directly on the mucous membrane of the stomach may cause a reflex vertigo. If sufficient liquid be added to the meals this disappears. Dr. Einhorn has seen certain cases in which the simple prescription of a glass or two of water about an hour after meals caused the disappearance of the vertigo.

True Stomach Vertigo.—Dr. Hayes mentioned the case of a Yale student who nearly fell from a tallyho as the result of an attack of vertigo. His attacks of vertigo were always preceded by a burning sensation at the pit of the stomach and were found to be associated with distinct hyperchlorhydria. As soon as this was relieved by appropriate treatment, the attacks ceased to recur. In chronic stomach conditions relief may be obtained, but as subsequent exacerbations of the stomach trouble are frequent relapses may occur. The direct connection between the gastric pathologic condition and the vertigo in these cases seems undoubted.

External Ear Vertigo.—Dr. J. F. McKernon said that vertigo as a symptom of external auditory affections is not very uncommon. It is well known that collections of cerumen in the external auditory canal may give rise to severe symptoms of dizziness. The presence of foreign bodies within the meatus may also produce a like result. Certain neoplastic growths are associated with vertigo as a prominent symptom. Inflammatory conditions of various kinds may produce a very similar effect. There is especially a membranous inflammatory condition of the canal that has this for a symptom. Exostoses of the bony canal by interfering with the proper ventilation of the external ear may be associated with dizziness. Residual inflammation of the middle ear is quite a frequent cause of vertigo. Certain other diseases in the neighborhood, as for instance, mumps, may be associated reflexly with severe vertiginous symptoms.

Labyrinthine Vertigo.—Dr. Dench said that the most illustrative type of labyrinthine vertigo is seen in syphilis of the labyrinth, whether the affection prove to be of the acquired or hereditary type. Dr. Dench has seen two characteristic cases recently. One occurred in a baseball player who had his primary sore six months ago. He suffered so much from dizzy sensations that he found it impossible to go on with his occupation and feared he would have to give up his position. Inflation failed to relieve the symptoms. He was treated by subcutaneous injections of mercury and by pilocarpine to its limit of tolerance. This patient had no disturbance of hearing. A second case had distinct disturbance of hearing. There was no history of syphilis, though as a prominent syphilographer said, there were symptoms of the disease, which probably ran its course about fifteen years ago. Mercury and pilocarpine were used with success in this case also. Pilocarpine is practically a specific and proves of great service in the vertigo that occurs with mumps also. When disturbance of hearing is associated with vertigo then the pilocarpine relieves this also.

In closing the discussion Dr. Fischer said that he does not favor the idea of auto-intoxication as a cause of vertigo more than reflex nervous influence. It seems probable, however, that there is a group of causes instead of any single cause at work in the production of the vertigo. Dr. Brandegee said that the pilocarpine is of more use in labyrinthine syphilis of the acquired than of the hereditary variety.

CHICAGO ACADEMY OF MEDICINE.

Stated Meeting, June 27, 1902.

Dr. A. E. Baldwin in the Chair.

Glycosuria and Diabetes.—Dr. R. B. Preble, after drawing attention to the impossibility of giving more than the very briefest attention to a few of the clinical phenomena of diabetes mellitus, called attention to the fact that glycosuria and diabetes mellitus were not interchangeable terms. Naunyn distinguishes twenty groups of cases of glycosuria, including something over one hundred separate conditions. Only the alimentary glycosuria is here considered. A person who cannot convert 100 grams of glucose is said to have an alimentary glycosuria, and the lower the converting power of the individual, the greater the pathological degree. A glycosuria of 1 per cent., or one in which more than 5 per cent. of the 100 grams is regained, should be regarded as very suspicious.

After making a diagnosis of diabetes mellitus, determine whether it is of the mild or severe type. Gradually withdraw the carbohydrates from the diet, until none are being taken. If the sugar entirely disappears from the urine the case is of the mild type; if not, of the severe type. If of the mild type, allow in the diet as much carbohydrate as can be converted; if of the severe, allow carbohydrates up to a total sugar excretion of 20 grams per day.

Lastly, Dr. Preble drew attention to the recently discovered adrenal diabetes, *i.e.,* glycosuria after injection of adrenal extract. This recalls the bronzed diabetes, and consideration of the bronze skin of Addison's disease with the fact of adrenal diabetes suggests the possibility of a disease of the adrenals as the cause of the bronzed diabetes.

J. Krank never operates until the urine is examined and it is determined by diet whether the diabetes is intermittent or continuous. Care should be exercised where sugar is always present. The great danger of diabetes in surgery is not the diabetes per se, but the conditions tending to form culture media for pathogenic bacteria. Most of its dangers can be overcome by proper antiseptic and aseptic procedures. Union by first intention is undesirable and bad practice. In cases where diet is without effect on the diabetes, extreme care must be exercised. Such cases readily become necrotic. It is good practice to keep the wounds open and to use mild antiseptics like boric acid. Operations on bones are especially dangerous.

Urinalysis in Diabetes.—Dr. William A. Evans said that for some time he had been using the polariscope as a test for sugar. The advantages are (1) its greater accuracy, and (2) the ease of application. As is known, the proper tests give reactions with several substances other than sugar, and recently there has been some literature to the effect that phenol hydrazin is not always reliable. His experience has been that the polariscope is not open to any of the objections that exist with other tests. It requires nothing except that the urine be free from sediment. This can usually be had by filtering through filter paper, but occasionally animal charcoal as a filtering medium is required. The only objection to it is the cost of the polariscope. He called attention to the desirability of having some levulose as well as glucose in the meal which is used for testing the converting powers of the person who is under observation. Saccharose probably then would be as good a sugar as can be used by reason of the fact that it contains a good deal of levulose.

Another point was the usual variations in the amount of sugar and even in the presence of sugar in glycosuria. It is not at all unusual for the sugar to disappear entirely for a certain length of time. For instance, at ten o'clock this morning there might be as much as ten grains of sugar, and at twelve o'clock the urine would contain no trace.

For several years he had examined periodically the urine of a number of very busy men in Chicago, whose urine contained a small quantity of sugar. They were not sick; they were carrying great responsibilities, and were equal to those responsibilities; nevertheless, they had a small percentage of sugar in their urine from time to time, and had had for several years.

Age Factor in Diabetes.—A. C. Cotton called attention to the fact that diabetes was rare in the extremes of life. The disease seemed to be increasing among children but this was due to the increased employment of urinalysis in diagnosis. There was an apparently greater amount of diabetes among children in Chicago than in New York. This was, however, due to the fact that the Chicago statistics covered the last four years when urinalysis was becoming frequent, while the New York statistics covered a much longer period. There was a seeming expression of heredity in certain cases. This was rather an expression of maldevelopment than of direct heredity. Diabetes occurred in children after jaundice and after scarlatina. As a rule diabetes in children had a fatal prognosis quite in contrast with the favorable prognosis of senile diabetes.

Ear, Nose and Throat.—W. L. Ballenger pointed out that opinions differed as to the ear, nose and throat produced by diabetes. Any specific disorders due to diabetes had not been clearly demarcated since other causes usually coexisted with diabetic states. Diabetes, however, frequently aggravated any morbid condition of the ear, nose and throat. In operations on these regions the fact should be remembered that diabetic coma was readily superinduced by anesthesia, which brought on the acid state which underlay coma.

Gums and Teeth.—E. S. Talbot pointed out that the gums and teeth were very early affected in the disease. The alveolar process, being a transitory structure, readily yielded to any toxemic state. As the arteries terminated at the base of the teeth, they readily decayed and the dentine cut like horn. The vinous odor of diabetes might occur in the mouth long before other conditions were evident. The early shrinkage of the alveolar process and gums at the outset of diabetes and of diabetic coma had been pointed out by Tyson two decades ago. The conditions of the gums antecedent to toxemic states deserve further study.

The Eye in Diabetes.—Dr. Wilder stated that one of the most marked changes of the eye seen in diabetes was that occurring in the crystalline lens, causing cataract. As the crystalline lens is an epiblastic structure, it very naturally is affected by degenerative changes in a disease such as diabetes, which affects other epiblastic tissues, such as the skin, teeth and nails. Diabetic cataract in the old might be difficult to differentiate clinically from senile cataract. Cataract in young life, without traumatism, should always excite suspicion and prompt an examination of the urine. Indeed, urinalysis should never be neglected in any case of cataract, although diabetic cataract can hardly be said to be a frequent condition. While glycosuria does not contra-indicate operation for extraction of cataract, one should not attempt removal if only one eye is affected. If both lenses are cataractous, the operation may be performed on one eye; if this is successful, the operator should hesitate to tempt Providence again by operating on the other, for the prognosis in these cases is not favorable, and we cannot, as in general surgery, trust to the wounds healing by granulation. In such operations primary union is essential to success.

Another condition of the eye sometimes seen in diabetes is retinitis, which may closely simulate in appearance albuminuric retinitis. Although according to the observations of ophthalmologists this is an infrequent condition, the speaker believes that it would be more frequently found if it were more carefully looked for by the physician. The lesion is usually found in both eyes, but the white plaques and hemorrhages do not so frequently exist in the region of the yellow spot, so that the sight may not be impaired to the same extent as in albuminuric retinitis. Whether the appearance of this condition has the same evil prognostic import as that of the retinitis of Bright's disease has not been fully determined.

Diabetic Specifics.—D. R. Brower pointed out that of necessity there was no specific for diabetes, since conditions indicating treatment were manifold and needed relief more than the glycosuria per se. Insomnia was a distressing symptom which often yielded to hydriatic procedure. He had found the combination of chloral hydrate and sodium bromide the best hypnotic. Some of the crises of locomotor ataxia were accompanied with glycosuria. What might be called the neurasthenic neuroses of diabetes mimicked every one of the great neurosis. Tabetic reflexes, including the light reflex, were sometimes found in diabetes. The amount of urine passed at the outset of coma was sometimes enormous. Some of the English clinicians had observed cases in which four gallons had been passed per diem. The largest amount he had observed was three gallons. He had found strychnine to be of value in the air hunger which is such a marked feature of diabetes as well as other suboxidation states. Heroin in one-sixteenth grain doses was an excellent substitute for morphine since it locked up the secretions less, quieted the general irritation better and decreased the sugar more. The general mental state of the diabetic was a capricious, apathetic, good humored irritability. This state, like the slightly similar but more suspicional state of the consumptive, interfered greatly with continuity of treatment. Sometimes the coma was disguised by a stuporous melancholia in which the seemingly unconscious patient had psychic nausea, depressing delusions and depressed emotionality. It was in just such a case that opium acted well, and heroin had here shown itself the best of the opium preparations. Trional and sulphonal might set up kidney strain and hence were often contra-indicated. All coal tar preparations were dangerous because of their tendency to produce cardiac depression. In constipation which tended to increase diabetic discomfort aloetic purges and colonic flushings were indicated. He had seen extreme obstipation followed by a fecal tumor produce temporary diabetes which disappeared on colonic flushings that removed the tumor. Rigorous diet was injurious. The distress produced worse results than the benefit from decreased glycosuria could compensate for. All of the alteratives had proved of benefit in luetic, lithemic and allied states. Gold chloride and guiacum were of benefit. Pancreatine and papin were of service. Where opium is indicated the extract of opium was preferable to morphine. Thyroidin and adrenalin were of doubtful value in most cases. Diabetic patients should always be watched for the appearance of acetone, diacetic acid and oxybutyric acid which indicated the onset of coma. Here sodium bicarbonate should be given in great quantity, hypodermically if necessary. Potatoes were allowable because of the quantity of water they contained and also because they tended to increase alkalinity, and also led to an undue collection of fat.

Dermal Changes.—W. L. Baum stated that among dermic states were sometimes to be noted bronzing of the skin and allied states. These were comparatively rare. Eczema was much more frequent and accompanied with itching and burning of the labia and vicinity was sometimes met with in women incident to frequent micturition. The meatus urinarius in the male was similarly affected. Boils, furuncles and carbuncles were of extremely frequent occurrence. Furunculosis and pruritus should always lead to urinalysis. Unilateral sweating at times occurs. Xanthoma elsewhere than on the eyelids indicates glycosuria. In diabetic gangrene, ergot was sometimes of service through its constitutional effects in decreasing glycosuria. In prostate and vesical irritation of glycosuric origin it was often of value. Diabetes mellitus edema is not necessarily the result of renal changes, but is usually an expression of anemia.

J. Frank called attention to a class of toxemic states presenting all the symptoms of diabetes except glycosuria and polyuria. These cases were bad subjects for operation.

Prof. Hallberg pointed out that extract of opium contained the tonic principle narcotin which affected beneficially the influence of morphine. Opium was to be preferred to its alkaloids.

Mental Effect of Acid States.—J. G. Kiernan said that glycosuria, diacetic acid, beta-oxybutyric acid and acetone often appeared during the quiet and depressed periods of certain psychoses. In depressed psychoses there was marked wasting as well as decidedly irregular metabolism. Sometimes cases occurred in which the patient was sane during the glycosuric period, and insane during the period when sugar was absent from the urine. Glycosuric states sometimes took the place of epileptic attacks. Acidosis (as Naunyn had called the acid state underlying coma) often coincided with the apoplectiform attacks of paretic dementia. Heroin in one-sixteenth grain doses answered much better than other opium preparations, but it is not free from certain dangers.

BOOK REVIEWS.

The Freethinkers' Manual. Containing the Description of the Seat and the Nature of the Human and Animal Soul; an Explanation of Thought, Dream, Death and Life; the Illumination of the Brain, the Fecundation of the Storage Batteries in the Human and Animal Body, an Explanation of Fever, Disease, etc., etc. By Professor Dr. Baur, Physiologist; H. F. Herbert, Electrician, and a great number of Scientists. Philadelphia, Pa.: Radical Publishing Co.

There was a time not so long ago when the physician was rather expected to be unorthodox in his views on religious and spiritual matters. That time is, we think, past. It was to the profession of that other time that a book like the present would appeal. We doubt, however, whether physicians will nowadays have much interest in a book that says seriously that man no longer "goes to his God, but his accumulators have become short-circuited." The chapter on the new medicine has a certain special interest because of the calm presumption with which a new classification of disease is introduced. "The new medicine acknowledges only two kinds of maladies. First the subelectrical diseases, and secondly the supra-electrical and finally the mixed maladies. To the first kind of maladies belong leprosy, cancer, osteomalacia, chlorosis and in general all the diseases during which we find no fever, but a general feebleness and low temperature, etc., etc." The assumption of medical knowledge is quite as brazen as the presumption of theological knowledge.

Traité de Médecine et de Thérapeutique. Poublié sous la direction de MM. P. Brouardel, Professeur à la Faculté de médecine de Paris, et A. Gilbert, Professeur de thérapeutique à la Faculté de médecine de Paris. Tome Neuviemè. Maladies du cerveau, de l'isthme de l'encéphale, de meninges encéphaliques, de la moelle epinière et des méninges spinales. Par M.M. Bourneville, Raymond, Claude, Hutinal, Klippèl, Dejerine, Thomas, Gilbert et Lion. J. B. Baillière et Fils. Paris.

Brouardel's and Gilbert's Traité de Médecine needs no special commendation in this its ninth volume; those volumes which have preceded it have stamped it as a leading work in the French tongue.

This volume, devoted almost exclusively to the study of the nervous system, enhances in a distinct manner the value of the whole series. It is masterly. Dejerine and Thomas' chapter on diseases of the spinal cord is an admirable contribution.

Throughout the volume may be seen in striking fashion the preeminent faculty of the French training for clearness of description and striking dramatic presentation. These descriptions of disease entities are marvels of this type.

Clinique des Maladies du Système Nerveux. Hospice de la Salpétrière. (Anne 1897-1898) Par Prof. F. Raymond. Quatrième Série. Octave Doin. Paris.

The custom of collecting in book form the clinical lectures of the famous teachers of the Salpétrière is worthy of emulation in other quarters, especially when such excellent material for permanent preservation is offered. While in such a series the studies are necessarily of a desultory character, their masterly handling makes them of double import.

The present fourth series has thirty-one studies; tumor of the Rolandic zone, tuberculous meningitis en plaque, alternating paralysis, superior-polio-encephalitis, double ophthalmoplegia, asthenic bulbar paralysis, hemiplegia, muscular atrophy, tabes and syringomyelia, lead poisoning, affections of the conus, anterior poliomyelitis, traumatic hysteria, hallucinations, myoclonia, juvenile paresis, and infantile myxedema. Such is the range of subjects treated. For the neurologist this series is indispensable.

Photographic Atlas of the Diseases of the Skin. By George Henry Fox, A.M., M.D. Parts X, XI, XII, XIII; J. B. Lippincott Company, Philadelphia and London.

Parts X, XI, XII, and XIII of this "physicians' edition" of Fox's Diseases of the Skin maintains the same standard of the earlier contributions and deserves from the reviewer's hands similar unstinted praise for the fidelity to nature and the beauty of execution made manifest. As already noted in the Medical News the possession of this series will prove of inestimable service to the general practitioner notwithstanding the many uncertainties of nomenclature in this branch of medicine.

A Practical Manual of Insanity for the Medical Student and Practitioner. By Daniel R. Brower, A.M., M.D., LL.D. and Henry M. Bannister, A.M., M.D. W. B. Saunders & Company.

The general medical student and practitioner is usually in much need of fundamental ideas concerning insanity. Not so much from the side of active therapeutics but from the viewpoint of early diagnosis and prophylaxis, particularly of those tragic accidents which are many times unfortunately the first intimation to the family or the physician that mental derangement is present in the household.

No amount of book reading is capable of making an alienist; actual living within the walls of an insane asylum is an essential feature in the study of this disease; but preceding such residence the student of mental science should have a firmly fixed series of fundamental questions which are essential in the investigation of the patients.

Such a groundwork is admirably sketched in this small manual. While it lacks much of the stimulating philosophy of many older manuals it may be regarded as a sound and admirable treatment of the essentials in this intricate field of human pathology.

Die Grosshirnrinde als Organe der Seele. Von Prof. Dr. Albert Adamkiewicz in Wien. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

The centuries-old and ever recurring query as to the location of what is termed the Soul once again finds an able exponent. Dr. Adamkiewicz presents in this small brochure many of the later day monistic doctrines concerning the brain pallium as the real seat of the soul.

Viewed from the medical standpoint the book gives an excellent short summary of the physiology of the so-called higher mental faculties.

Clinique des Maladies du Systeme Nerveux. Hospice de la Salpétriére. Annee, 1898-1899. Par. Prof. Raymond de Paris. Cinquieme Serie. Octave Doin. Paris.

This is the fifth series of lectures of Professor Raymond as given at the Salpétrière during the years 1898-1899. If the lectures on Nervous Diseases in American medical colleges were of this order we venture to claim that less would be heard in condemnation of the "didactic" lecture. The style is that of the clinical lecture, simple and direct and of great pedagogic value.

There are 650 pages in the present volume, 140 of which are concerned with a study of partial epilepsy of the Bravais Jacksonian type. The limitations of our knowledge concerning the topography of the sensory cortical centers is well pointed out in another lecture. Much space is given to disseminated tuberculous meningitis and the question of brain tumors is fully and illuminatingly discussed. Other subjects written of are: Bulbar asthenia, sensory disorders in tabes, objective disturbances of sensibility in syringomyelia, dorsal Pott's disease, hysterical word deafness, scleroderma, "spondylose rhizomélique," and others.

The subjects treated are active ones and many in need of thorough discussion. These contributions are noteworthy and timely.

Muskelfunction und Bewusstsein. Eine Studie zum Mechanismus der Wahrnehmungen. Von Dr. E. Storch in Breslau. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

The phenomena occupying a middle ground between known nervous activities and unknown or "illy apprehended soul" life affords always a fascinating study. The present small brochure concerns itself with the function of memory as resident in muscular activity, and is a valuable contribution to this interesting subject.

Ueber die Aetiologie des Carcinoms mit besonderer Berücksichtigung der Carcinome des Scrotums der Gallenblase und des Magens. Von Dr. Gustav Fütterer. Professor der Pathologie in der Universität von Chicago. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

This monograph of 115 pages is the work of one among the American profession and is a most admirable treatise. It concerns itself with pathological studies of carcinoma viewed from the experimentalist's viewpoint, and also deals in detail with carcinoma of the scrotum, the gall-bladder and of the stomach.

Human Embryology and Morphology. By Arthur Keith, M.D. (Aberdeen), F.R.C.S. (Eng.), Lecturer on Anatomy, London Hospital Medical College. Edward Arnold, London.

This is a straightforward didactic account of human embryology. It is admirably adapted to the teaching of this branch of knowledge and has but one small defect. The drawings illustrating many of the details are inartistic in their ideas and crude in the execution. Apart from this minor blemish the book deserves a wide recognition.

Mental Growth and Control. By Nathan Oppenheim, M.D. The Macmillan Company, New York.

In a prefatory note the publishers tell us "that certain books of counsel, teaching young men and women how best to shape their ideals and their lives played an honorable part in the literature of the nineteenth century." "These books * * * have long since become powerless to aid a younger generation" and it is their intention "to issue a short series of small volumes that shall fulfil the mission of the best of these obsolescent manuals."

This present is one of the series projected. From most points of view it is a very excellent integer in the make-up of the publisher's ideal, but in some regards it will never fill the place of a number of the obsolescent volumes. While we freely admit that the skeleton of facts of many of these older manuals was very meager, yet the clothing was gracefully and entertainingly adjusted. The present work abounds in structural details, but the literary tailoring does not seem to us attractive. There is too much of the pedagogue and not enough of the real teacher or inspirer. The intellect is most bravely crammed but the emotions are not touched. Herein lies the great difference between the older and the newer.

MORPHINISM AND NARCOMANIAS FROM OTHER DRUGS. Their Etiology, Treatment, and Medicolegal Relations. By T. D. CROTHERS, M.D. W. B. Saunders & Company, Philadelphia and London.

COMING as this work does from one of the most active members of the profession interested in this side of medical work it bears the impress of sincerity and of value. The author first gives a short historical résumé of the history of opium and its uses, and then takes up the various clinical features.

As a whole the work is very interesting and its reading profitable. If any adverse criticism should be given we believe that it would come from the standpoint of the literary presentation of the subject. Here the author has been hampered by a certain lack of perception of the logical relations and has given us a disjointed, though excellent treatise.

PROGRESSIVE MEDICINE. Vol. II. June, 1902. Surgery of the Abdomen—Gynecology—Diseases of the Blood and Ductless Glands—Metabolic Diseases—Ophthalmology. Lea Brothers & Co., New York and Philadelphia.

THIS is the fourteenth number of PROGRESSIVE MEDICINE that has appeared and the fourth annual survey by the same writers.

In one sense this volume has always been a most attractive and valuable one for the practitioner and surgeon—not only because of the topics treated but because of the most excellent grasp of the subject matter of the field and a very discriminating sense of the art of knowing how to tell it, possessed by the contributors, Drs. Coley, Clark, Stengel, and Jackson.

They apparently have not lost any of their art or their enthusiasm, for the present volume is the equal if not better than any that have gone before it. The chapters on gunshot wound, on appendicitis and on surgical treatment of the kidney are thoroughly modern and valuable. The articles under Gynecology are admirable. The résumé of diabetes and its correlated subjects should be read by all active practitioners, for this is a field in which epoch-making discoveries are being made. The section on Ophthalmology is as complete and as scholarly as ever.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. A new Edition, Completely Revised and Rewritten. Edited by ALBERT H. BUCK, M.D. Vol. IV. Erg.-Inf. William Wood & Company, New York.

THE immense superiority of this revision over the original work is made more manifest with the appearance of each volume, and when it is remembered that the Reference Handbook was for our fathers a veritable storehouse, its value to the present generation is manifest.

From the opening article on Ergot to the closing pages devoted to infiltrations the topics discussed are authoritatively handled.

Certain topics call for more than a passing mention. Thus the article on Evolution is one rarely met with in a book of this character. While leaning somewhat to the speculations of the modern students of "Biometrica" it is an interesting and valuable contribution. The articles on the Eye constitute a modern text-book both in their elaboration of illustration and the completeness of description. Food and Drug Inspection is well handled and the subject of Food Poisons is given in a nut shell. The importance of the orthopedics of the foot is recognized by the writer of this article here. Nowhere outside of the author's own book is the subject so well discussed. The subject of Fractures is, we believe, below the usual standard. The illustrations particularly being for the most part the old-fashioned woodcuts of the early days of bookmaking. The article on Fungi is more technically informing than that in the earlier edition, but lacks much of the interest of the older account. It is a safe guide, however. Excellent articles also are those on Gunshot Wounds, Surgery of the Hands and Fingers, Heredity, Hernia, Histological Technique, Hospital Ships, Impregnation, Infancy and Infant Feeding.

There are some of the shorter articles and even a few of the longer ones which have not received their due share of the modernizing process, but these are but few in number and insignificant when the work, as a whole, is considered.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

CLINICAL PSYCHIATRY. By Dr. A. Ross Defendorf. 8vo, 420 pages. Illustrated. The Macmillan Company, New York.

THE ELECTRIC PRACTICE IN DISEASES OF CHILDREN. By Dr. W. N. Mundy. 8vo, 613 pages. The Scudder Brothers Company, Cincinnati.

THE ROLLER BANDAGE. By Dr. W. B. Hopkins. Fifth Edition. Demi 8vo, 162 pages. Illustrated. J. B. Lippincott Company, Philadelphia.

THE SURGERY OF THE RECTUM. By Dr. Charles B. Kelsey. Sixth Edition. 8vo, 402 pages. Illustrated. William Wood and Company, New York.

THE ESSENTIALS OF HISTOLOGY. By Dr. E. A. Schäfer. Sixth Edition. 8vo, 416 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

TEXT-BOOK OF PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY. By Dr. G. Bunge. Second English Edition. P. Blakiston's Son & Co., Philadelphia.

TRANSACTIONS OF THE CHICAGO PATHOLOGICAL SOCIETY. Vol. IV. Oct., 1899-June, 1901. 8vo, 494 pages. Illustrated. American Medical Association Press, Chicago.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

SOME POINTS IN THE TREATMENT OF ACUTE RHEUMATISM.[1]

BY W. H. THOMSON, M.D., LL.D.,
OF NEW YORK.

THIS subject can now be dealt with only in some of its aspects. There is no disease in which the physician will find both successes and failures so frequently occurring as in this common complaint. A beginner in practice is apt to undertake the management of his first case of the kind quite hopefully, for he supposes that he has just the remedy for it in the salicylates. Very likely this particular patient and several others afterward will be soon relieved by the drug; but ere long in another case one joint after another becomes inflamed in prolonged succession. The salicylate doses are multiplied, but so are the inflamed joints; days and weeks pass, the patient meanwhile growing whiter and whiter, while the attendant anxiously consults books for something more, till finally the family suggest a consultation. The consultant asks what the attendant has given, and finds that nearly everything in print has been tried; the question is what the man of long experience will suggest next.

I believe that the most satisfactory position from which to approach this subject of the treatment of acute rheumatism is by endeavoring first to discover if we can be guided at all by facts connected with its etiology and with its clinical course.

In the first place, it is now generally admitted to be due to a veritable specific bacterial infection. A living toxin-producing organism first gains entrance, then grows into a more or less abundant crop in the system; the resulting symptoms are proportioned to the activity of the growth and to its duration. This view at once removes it from any resemblance to gout, which has nothing to do with a specific micro-organism, and this radical difference ought never to be forgotten.

Being such, has it its own time to get through with its growth, or, in other words, is it self-limited in time like the majority of other specific invaders of the body? The answer to this is that it does seem to have its own seasonal time and course, which may be set at about six weeks. By this it is not claimed that it will produce all its various symptoms or derangements continuously for six weeks, but that it is still to be counted on as present in the system for that length of time. On the other hand, those cases in which it persists to act for a much longer period than six weeks can be readily accounted for by the analogies of other infections. For example, about one in five patients with typhoid fever in certain epidemics have relapses in which all the stages of typhoid are gone through with again. The practical question then is, do we know of any special causes for these relapses in rheumatic fever so that we can prevent them?

Have we any means for arresting this growth when once begun in the system, or of so modifying it that it may run a comparatively harmless course and thus escape its complications? The first comment on this question is that anything which would arrest the growth would be in the nature of an antidotal germicide. Quinine is such in ague because it is a more or less effective direct poison to the plasmodium malariæ, and very probably so is arsenic. The salicylates have been regarded by some as similar agents against the micro-organisms of rheumatism, but there are several weighty considerations against this view. Aside from controlling the symptom pain and thus allaying the accompanying irritation, it is doubtful if these drugs modify much else in the development of the disease. Their action, therefore, would seem to be mainly on some properties of the toxin, but not on the organism which produces the toxin, which shows that they are not true germicides. Aside from the salicylates there is at present no known specific antidote to the rheumatic infection. We have reason to hope that such may yet be discovered, but that is all.

We are therefore brought back to the question, granted the premise that we have to deal with a bacterial disease, what can we do to help the patient against the effects of this poisoning? The first consideration which comes up now is, how and where did the bacterium enter? We have only one mucous tract which can be named with any degree of probability, that of the tonsils. These structures seem well fitted to become the portals by which the blood can become infected both by bacteria and by their toxins, as in diphtheria, and an antecedent tonsillitis has been noted in about twenty per cent. of cases of acute rheumatism which have been observed with this inquiry in view. My own observations would rate it as high as twenty-five per cent., for often when patients have denied to me that they had had sore throat an examination of their fauces would show distinct signs of tonsillitis. The analogy with gonorrhea which also causes an acute polyarthritis often scarcely distinguishable from that of rheumatism, and generally accompanied by dissemination of the gonococcus in the blood, points strongly to a primary seat of infection on a mucous surface, while the well-known clinical fact that certain patients always expect an attack of rheumatism whenever a sore throat comes on further strengthens the hypothesis that the tonsils, very often at least, are primarily responsible for this infection. I have therefore recommended thorough douching of the throat as a morning and evening toilet procedure for its prophylactic advantages. With a little practice the tonsils can be as well washed as the hands. One to two teaspoonfuls of chlorate of potash with five drops of oil of wintergreen or oil of peppermint dissolved in a pint of hot water and then directed against the back of the throat by a fountain or Davidson's syringe while the mouth is kept wide open over a basin will disinfect the throat far better and more easily than any swabbing, as I have found in numerous cases of the chronic pharyngitis which tends to implicate the ears. When rheumatic fever has once set in, it may be too late to expect much from this procedure, though we cannot be sure that some further poisoning may not be prevented by it; while, as an efficient preventive against further infection at the first signs of sore throat in patients previously susceptible to rheumatism, I think that I can speak of it quite confidently.

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[1] Remarks in a discussion before the Section on Medicine, N. Y. Academy of Medicine, October 18, 1901.

Another fact connected with acute rheumatism is the characteristic development of a remarkable sensitiveness of the skin. The entire extent of the cutaneous nerves from head to foot seems to be specifically excited by the rheumatic toxin from the very beginning; no other infection compares with it in this respect. It resembles the sensitiveness of some persons with a bad cold in the head who can tell when a door is open downstairs though no one else can. Before I accepted the view of its bacterial origin, I used to ascribe rheumatism directly to derangement of some cutaneous function, as gout is dependent upon perverted metabolism in digestive processes; my reasons were based upon the geography, so to speak, of the disease. Rheumatism is endemic wherever the skin is often chilled when it is wet. This statement seems to be negatived by the British army reports, which would appear to rate Egypt, where it never rains, as bad a country for rheumatism as Canada; but I found the Bedouin Arabs who dwell in dry deserts particularly subject to it, with an easy explanation therefor. When the Bedouins go to sleep in their tents, as they do soon after sunset, the air is still very hot over the recently glowing sands; but as the night wears on the rapid radiation of heat from ground wholly naked of grass makes the morning hours often bitterly cold. Perspiration first and chill afterward are therefore as common to Arabs as is the chilling of a wet skin to Newfoundland fishermen, and the same may be said of the evenings and mornings of Egypt.

As soon as rheumatic fever sets in, the painful joints are much more sensitive outside than they are inside; in no other inflammation is surface tenderness so extreme. The profuse sweats of acute rheumatism I would ascribe as much to the peculiar condition of the cutaneous nerves as to the presence of the poison in the blood. Therefore attention to the skin is called for in this disease by indications of no minor importance. While there is no immediate vascular connection between the blood-vessels of the skin and the blood-vessels of subjacent parts or organs, there is no more important fact of applied physiology to medicine than that the association of the cutaneous nerves with the vasomotor nerves of the underlying organs is very close. Stimulant or sedative impressions to the skin will directly produce stimulation or sedation in the circulation of the pleura, pericardium, peritoneum, uterus, inner parts of joints, etc. The sudden cold caused by evaporation from a finely-divided moisture on the skin of a rheumatic patient may at any time initiate a pleurisy or a pericarditis (or aggravate either if present) as certainly as any influence that can be named. All patients with rheumatic fever, therefore, should be jealously dressed in flannel and lie between blankets from the very first, and extra precautions should be taken with the pericardial surface for the same reason. Soothing liniments with abundant dry dressings should likewise be provided for the inflamed joints. I believe that a sedulous attention to the skin would prove a much better preventive of tedious relapses than dosing with drugs, and as a prophylatic to susceptible persons I think highly of the old Greek custom of daily bodily inunctions, especially of the feet. With reference to the cardiac implications, I can only say that I am strongly of the opinion that the modern displacement of treatment with alkalies by the salicylates has been followed by greater frequency of heart troubles. The alkalies are certainly no cures for rheumatic fever, but a faithful dosing with them till the urine is made alkaline, and stays so, is a great safeguard against carditis, and I never should fail to prescribe them as soon as the least sign of impending heart trouble develops. Together with this and all through the course of the disease, as long as the pulse remains quiet, I give aconite, as there is no remedy so serviceable both for the onset of cardiac inflammations and for the prolonged irritability of this organ which follows a rheumatic fever. Rest is the chief indication for the heart now and a necessity which may continue for months, and aconite is the best medicine for securing it.

The anemia caused by the rheumatic toxin is *sui generis*. It has no resemblance to the anemia of chlorosis, and iron, instead of curing it, is mischievous. Cod-liver oil is much more benefical and every means to insure its assimilation should be attempted. Phosphorus is as problematical here as always, but small doses of arsenic have sometimes seemed to me to be useful.

I have purposely refrained from touching upon the employment of the compounds of salicylates, because they stand in no need of recommendation. Their introduction marked a great gain in the therapeutics of rheumatic fever, particularly in acute cases, with only the usual drawback that their efficacy has tended to their employment in a routine fashion. Like all really good remedies they call for discrimination in administration. Thus, the sodium salt which is most in use has the disadvantage of causing serious prostration in some patients when given in full dose, and I think that it occasionally increases the specific effect of the rheumatic toxin in causing mural weakness by the softening of the heart muscle. Now and then also it causes delirium, which is a disquieting symptom in acute rheumatism. My own preference is for the strontium salt as less depressing and of equal efficacy when given in the same dose. Many do best, especially quite young subjects, with salicin itself in doses of fifteen to twenty grains. In tedious subacute cases it is often advantageous to omit the salicylates altogether and prescribe lemon juice instead.

THE SYMPTOMATOLOGY AND DIAGNOSIS OF ACUTE ARTICULAR RHEUMATISM.

BY LEONARD WEBER, M.D.,
OF NEW YORK.

IN trying to outline the symptomatology and diagnosis of acute articular rheumatism, the subject of subacute rheumatism must be touched upon, because it is just here that errors in diagnosis do sometimes occur; I may also be permitted to speak upon some points in the differential diagnosis.

If the essential cause of rheumatic fever be still unknown, I venture to say that by the combined holding of the germ and nervous (*i.e.*, trophoneurotic) theories, I have generally been pretty well able to arrive at an understanding of the etiology of a given case and the more or less severe disturbance of the physiological metabolism of the system in the course of the disorder. To be sure, even with the help of all that is known thus far, you cannot get around the predisposition, inherited or acquired through occupation and environment.

Though an acute attack may be preceded by some malaise, it generally comes on abruptly after exposure; it may take the patient at any time of the year, but I have had many more cases of polyarthritis rheumatica in spring and summer than at other times. The fever rises quickly, and the disease may be fully developed in twenty-four hours, with a temperature of 102 to 104° F., and pulse above 100; the urine is scanty, highly colored and in the majority of cases there are profuse acid sweats. The temperature shows a peculiar irregularity in remission and exacerbation, possibly due to the sweats. Hyperpyrexia with fatal issue I have seen twice in otherwise uncomplicated cases a long time ago, not in later years. Strümpel says hyperpyrexia may occur also with salicylate treatment, and will not be influenced by it, though it may yield perhaps to cold baths. Delirium is always present in hyperpyrexia ending with coma; it may also be manifest in a mild form in ordinary cases, particularly with alcoholics; two or three times it has been observed by me after somewhat heroic doses of the salicylates. The disease is polyarticular, affecting usually knees, ankles, elbows, wrists. The monarticular form of acute rheumatic arthritis is rare; I have seen two cases, elbow in one, knee in the other, yielding promptly to salicylate of soda and salol, in persons previously suffering from intermittent fever. The vertebral joints are but rarely attacked; I remember one case, however, concerning a student of medicine, in which the lower dorsal and lumbar vertebræ were severely affected and quite obstinately so. The joint effusions are not often large, but pain and tenderness almost always severe. The effusion may extend to neighboring muscles and sheaths of tendons. The blood shows well marked leucocytosis early, and anemia develops rapidly. An apex murmur perceived in the early stage of the disease is generally caused by fever and anemia and is not indicative of endocarditis. When I still hear it after complete defervescence and comparative restoration, my patient is made to stay in bed and is treated as if he had endocarditis—and he then generally has—and is not allowed to rise nor be about for some weeks.

Albumin in the urine is not uncommon and need not worry us; acute parenchymatous nephritis with fatal issue I have seen but once. It was in 1898 in the case of a young man of twenty-four, whose mother had died of rheumatic hyperpyrexia in 1887, and whose brother also had rheumatic fever with endocarditis three years ago, but made a complete recovery.

In the subacute form of articular rheumatism all the above symptoms are less pronounced, fewer joints are affected, the temperature is not high, but the symptom-complex may go on for weeks, and when still less marked may be misinterpreted, until the error in diagnosis is corrected by the appearance of a valvulitis.

Endocarditis is of so frequent occurrence in acute rheumatism that we are justified in calling it one of its features rather than a complication. It is almost always "endocarditis verrucosa benigna," the ulcerative form being very rare, and concerns the mitral valve most frequently. Though there is no evidence of incompetency of the valve soon after the attack, sclerosis and retraction will develop, but may, it is my belief, often be prevented by clever management and persistent treatment.

The course of the disease is extremely variable, and though we have a good right to say that the salicyl preparations are specific in their action for overcoming an attack, they are not specifics in the sense of effecting a cure, and A. Flint and Gull and Sutton may be correct in saying that inflammatory rheumatism is a self-limited disease, and that medication has probably no special influence upon its course and duration.

In briefly considering the differential diagnosis of acute rheumatism, I want to mention: (1) Acute gonorrheal arthritis, which may be multiple, but is more often monarticular, caused by the gonococcus and staphylococcus. It does not react upon salicylates, a helpful moment for diagnosis if the patient's previous history be obscure or cannot be obtained. This form of arthritis is of rather frequent occurrence. I believe it to be a fact that a slight trauma to a joint that had once been the seat of rheumatism can stir up again a rheumatic arthritis, but I have also the records of two cases of persons who, having had acute articular rheumatism some years before contracting gonorrhea, soon after infection presented the symptom-complex of subacute multiple arthritis with effusion which yields to salicylates and salol, though rather slowly. These cases, in my opinion, were not gonorrheal but rheumatic arthritis plus gonorrhea.

(2) Septic arthritis, puerperal or otherwise, of streptococcus infection, is generally purulent.

(3) The secondary multiple arthritis of acute infectious diseases, in scarlatina, dysentery, cerebro-spinal meningitis, perhaps also in rare cases of severe syphilis, will be recognized by careful examination of the history of the case.

(4) Last year I had a case of multiple neuritis in my clinic concerning upper and lower limbs which had much resemblance to acute rheumatism so far as pain and tenderness in the joints and limbs were concerned, and some periarticular swelling; but then, there was the paralytic lameness, etc., which soon established the diagnosis. In looking up authorities at that time I found that no mention was made of multiple neuritis in the subject of differential diagnosis of rheumatism.

(5) Acute osteomyelitis and necrosis of bone may be multiple and have been mistaken for acute rheumatism. But the disease concerns the shaft of the bone and causes very great constitutional disturbance.

(6) Gout and acute rheumatism will not be easily confounded when the gouty attack is of the classic kind. It is not quite so easy when we have to deal with a case of multiple uric arthritis with periarticular swelling, exquisite tenderness and fever. In the few cases of this kind which I attended, a diligent search for subcutaneous deposits of urates around the joints has been rewarded by finding such, however small, and proved helpful in making a previously doubtful diagnosis certain.

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ON THE PATHOGENESIS OF ACUTE ARTICULAR RHEUMATISM.

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For the past lustrum the predominating etiological hypothesis has ascribed the origin of acute articular rheumatism to bacterial activity. Indeed, the clinical features of rheumatic fever would favor the presumption of its infectious nature. The rather abrupt onset, the fluctuating pyrexia, the inclination to recurrence, the production of leucocytosis, the involvement of joints, the synchronous or successive invasion of structures and organs in different parts of the organism, the self-limitedness, the possible epidemic occurrence—all lend color to the idea of its bacterial character, to confirm which has been the endeavor of a considerable number of investigators.

Sahli,[1] performing a necropsy on a case of acute articular rheumatism, found in addition to the joint affection involvement of the endo- and peri-cardium, the pleura and the bronchial glands. Nowhere had suppuration occurred. He obtained by cultivation from the blood and organs a coccus analogous in every respect to the staphylococcus pyogenes citreus. As he believed, it was either an attenuated suppuration germ or a specific micro-organism related to the pyogenic cocci. Introduced intravenously, subcutaneously, or into the joints of animals it proved non-pathogenic.

On the other hand, from the blood, brain and endocardium of a young woman affected with acute articular rheumatism and following chorea, endocarditis, and nephritis, Westphal, Wassermann and Malkoff[2] isolated a micro-organism which, when inoculated into animals, was productive of polyarthritis. In the exudate of the artificially induced polyarthritis the micrococcus —a streptococcus which in the blood and tissues sometimes appeared as a diplococcus—was recovered and when injected would again produce acute arthritis.

Singer[3] endeavored to demonstrate that rheumatic fever was due to the presence of staphylococci and streptococci in the organism. He examined the blood and urine of a large number of patients and made bacteriological studies also of exudates, etc., obtained from the dead body. The inexactness of his methods, etc., occasioned the controversial reply of Chvostek and Kraus[4]. These authors, citing over 100 cases of acute articular rheumatism, which had come under the observation of various investigators, came to the conclusion that all blood examinations performed by unobjectionable methods, and hitherto published (1898) are absolute proof against the pyemic (staphylococcic) nature of acute articular rheumatism.

Sittmann[5] notwithstanding repeated examinations of the blood of each of his five cases of acute articular rheumatism, could not demonstrate any micro-organisms. He contends, therefore, that we are confronted with a septic condition if pyogenic bacteria are found in the circulating blood or in the joints, and that if no such organisms could be detected, the case was one of genuine rheumatic fever. Michaelis,[6] who had pointed out the occurrence of bacteria in many infectious diseases, never succeeded in obtaining micro-organisms from the blood in cases of acute articular rheumatism. He maintains on this account that a negative result of the bacteriological examination is characteristic of the presence of rheumatic fever.

Having obtained but negative results when examining the exudate of the joints in acute articular rheumatism, F. Meyer[7] made cultures from tonsillar mucus and found in almost every instance a delicate diplococcus, growing in chains and resembling the one discovered by Wassermann. However, it proved not identical with the latter. It could not be obtained from individuals who were not affected with rheumatic fever. Injected into animals it called forth intra-articular, usually sterile, sero-purulent exudates.

A streptodiplococcus, closely resembling the one described by Meyer, was later found by Allaria[8]. The same was obtained from the tonsillar exudate in which it occurred together with a staphylococcus non-pathogenic to guinea-pigs. The diplococcus is described as being very small, arranged in pairs or in short chains. It stains readily by Gram's method and grows very well on agar with blood. The injection into guinea-pigs of one c. c. of a forty-eight-hour culture was followed after four or five days by swellings in various joints, which, however, soon subsided. The joints of some of the animals who had been killed, contained a serous exudate in which, microscopically, slightly corpuscular elements, but no bacteria, could be distinguished. By cultivation, however, the micrococci were again obtained from the transudate.

In the blood of individuals affected with acute articular rheumatism Achalme[9] found a comparatively large obligate anaerobic micro-organism resembling the bacillus anthracis. It is not a saprophytic bacterium and stains well with aniline dyes and by Gram's method. The organism which may have a capsule, grows best in liquid media. It attains its maximum growth between 30-38° C.; in temperature above 40 or below 25° C., its growth is prevented. Infrequently it forms spores; when occurring they are large and develop on the end. Its inoculation into rabbits and guinea-pigs has been followed by some characteristic symptoms of rheumatism.

Achalme's findings were corroborated by Sawthenkow,[10] who pointed out that chemiotaxic and necrobiotic substances were yielded by the bacillus. Treboulet and Coyon[11] cultivated a facultative anaerobic diplococcus which they presume to be the specific germ of simple rheumatic fever, contending that Achalme's bacillus, which they have also found—alone as well as associated with these diplococci—are the causative factors of the graver types of the affection. On the other hand Predtetchensky,[12] who undertook to investigate the presence of Achalme's bacillus in five characteristic cases of acute articular rheumatism, uninfluenced by sodium salicylate, employing utmost precaution and the methods deemed best for the cultivation of the organism, did not find it in a single instance. The cultures of three of his cases remained perfectly sterile. In the cultures from the other two cases he isolated a special micrococcus, arrayed in elements of two, three, and four organisms, facultative aerobic and anaerobic. On solid media these organisms developed in short, on liquid media in longer chains. Inoculation of the organisms into guinea-pigs gave rise to symptoms of rheumatic fever. The micrococcus was again obtained in pure culture from the blood of the heart and the joint exudate. The observer does not pretend that this organism is the same as the one discovered by Wassermann, but maintains that it is the causal factor in the production of acute articular rheumatism.

Poynton and Paine,[13] searching in vain for Achalme's bacillus, found in eight consecutive cases a diplococcus, growing in liquid media in streptococcal chains of varying length, and in solid media in staphylococcal masses. These organisms stain with aniline dyes, were discolored by Gram's method, and occurred in the form of cocci linked together in pairs. They grow well in a slightly acidulated (lactic acid) medium of milk and bouillon, are aerobic but grow better anaerobically. Intravenously injected into the rabbit, a symptom complex akin to that of rheumatic fever is produced. The authors do not claim that this diplococcus is the only causative agent of acute articular rheumatism, but they contend that it may be shown to be the etiological factor of all cases of the usual form of the infection.

Besides those alluded to, a host of other observers have published their bacteriological findings on the origin of rheumatic fever. Taking into consideration only the results and propositions recited, we can clearly differentiate between the following contentions:

(1) No micro-organisms occur in the blood of articular rheumatism: viz., Sittmann, Michaelis; (2) A specific coccus is present, but is non-pathogenic for animals: viz., Sahli; (3) A specific streptodiplococcus is present, which is pathogenic: viz., Westphal, Wassermann and Malkoff; Meyer, Allaria; Predtetchensky; (4) There exist a staphylococcal and streptococcal infection: viz., Singer; (5) A specific bacillus is present: Achalme, Sawthenkow; (6) Diplococci and bacilli occur synchronously: viz., Treboulet and Coyon.

A critical review of all pertaining investigations must take into account the following considerations: (a) *The authenticity of the affection from whence the material to be examined is derived;* (b) *the absolute exclusion of concurring disorders;* (c) *conclusive proof for the non-existence of micro-organisms (diplococci) in tonsils, urethra and vagina, prior to the rheumatic attack.*

A number of affections, resembling acute articular rheumatism in some of its features, are frequently mistaken for it. This is particularly the case with pyemic conditions.

We know that rheumatic fever does not tend to suppurative changes and that whenever it is accompanied or followed by pyemia this is due to an additional infection. Consequently there can be little doubt that in all instances in which streptococci or other pyogenic bacteria were obtained, the prevailing affection was either pyemia *per se,* or pyemia synchronously occurring with rheumatic fever.

Infectious pseudo-rheumatism, scarlatinal arthritis, acute osteomyelitis, gonorrheal invasion of one or more joints, and other morbid conditions of the articulations are often diagnosed as acute articular rheumatism. In my opinion the different results obtained by the various observers are due to the investigation of various affections other than genuine articular rheumatism, or to the study of the graver forms of the latter disease which is never a malady *sui generis.*

The uncertainty regarding the real nature of the individual cases investigated; the neglect or inability to demonstrate a co-existing infectious or non-infectious disorder; the unconfirmed evidence concerning the absence of known pathogenic bacteria from organs like the tonsils, urethra and vagina prior to the attack; the diversity of the methods employed and the contradictory findings of the various observers—all these show that the hypothesis of the microbic origin of acute articular rheumatism, in spite of an apparent clinical justification, is as yet founded more upon speculation than upon facts.

Since the more exact differentiation between uric acidemia and allied disorders on the one side and the rheumatic affections (so-called) on the other side, and since the advent of the theory of the bacterial causation of acute articular rheumatism, the older presumption of the chemical origin of this affection has received but meager attention.

According to this chemical conception the polyarthritis is due to the excessive production and the retention in the organism of lactic or dextrolactic (sarcolactic) acids and of certain acid salts. Dextrolactic acid being a constituent of normal muscle, forms an integral part of the meat extracts of commerce. It is contained in normal venous blood to the amount of 0.0079 per cent. (Berlinerblau), and it leaves the organism by the way of the lungs and the skin in the form of $CO_2$and H_2O. It has been found in the sweat of women affected with puerperal fever and also in the bones in osteomalacia. It enters almost regularly into the composition of pathological exudates, where its occurrence does not invariably seem to depend upon meta- or cata-bolic disorders, but occasionally upon the fermentative activity of the bacteria present. However, as the serous effusion of uncomplicated genuine acute articular rheumatism in all probability is free from bacteria, lactic or dextro-lactic acid if at all present, must be derived from some other source. Supposing the production due to the activity of bacteria contained in the transudate, the acids naturally have to be precluded as etiological factors. It has been contended that the excess of lactic acid in the organism reduced the alkalescence of the blood. In five cases of acute articular rheumatism in which I determined the degree of blood alkalinity, I found the following: (1) Female, aged twenty-four years, domestic. Blood alkalescence on the second day of the affection equivalent to 400 milligrammes Na HO to 100 c.c. of blood, and on the sixth day to 373 milligrammes Na HO to 100 c.c. blood; (2) Male, aged thirty-one years, driver. Blood alkalescence first week of the affection 320; second week 373; (3) Male, aged twenty-eight years, baker. Blood alkalescence second day of the affection 426; tenth day 400; (4) Male, aged nineteen years, clerk. Blood alkalescence first day of the affection 346; seventh day 400; (5) Male, aged thirty-eight years, cook. Blood alkalescence third day of the affection 373.

Altogether, nine determinations of the blood alkalescence in acute articular rheumatism were made. The alkalimetric process, which I employed, is a modification of the Loewy-Zuntz method, as devised by Engel, with the exception that n-150, $C_{14}H_{10}O_9$, V.S. for reasons of greater accuracy were substituted for n-75, $C_{14}H_{10}O_9$, V.S.

The highest alkalescence met with was calculated to be equivalent to 426, and the lowest to 320 milligrammes Na HO to 100 c.c blood. The extreme aggregate in the divergency was therefore but 106, while the average alkalescence calculated in milligrammes of sodium hydrate to 100 c.c. of blood amounted to 379. This is hardly at variance with the normal blood alkalescence which, according to over 1,000 determinations made by me, fluctuates between 300 and 500. Results similar to mine, demonstrating a normal or almost normal alkalescence of the blood in rheumatic fever were also obtained by Canard,[14] Karfunkel,[15] and Dessèvre[16].

The improbability of the microbic manufacture of lactic acid and its isomeric modifications in the effusion of rheumatic fever and of their performation in the blood, forces us to conclude that these acids which were detected in the transudate of some instances of uncomplicated, acute articular rheumatism owe their origin to another factor, probably to an unorganized ferment.

The normal, or almost normal alkalescence of the blood precludes the occurrence therein—in pathological amounts at least—of any other acid or of acid salts. In rheumatic fever like in the normal state *acid-forming* principles, however, are contained in the blood. While thus the component substances of acids, or of acid salts, may be conveyed by the blood to and through a physically abnormal structure, the acid-formation itself—if occurring at all—takes place *extra sanguinem.*

At all events, from whatever point of view one may consider the formation of pathological quantities of lactic or paralactic acids, or acid salts in rheumatic fever, so much can be stated with certainty that it is never the primary cause of the affection. Moreover, to my knowledge recent literature does not record a single case of acute polyarthritis in which lactic acid had occurred in the urine. Still, it could be maintained that the acid is split up into more simple compounds prior to its excretion by the urine, and that it could thus not be detected in the latter. However, the presence of lactic acid in the urine, which is always of pathological significance, has been demonstrated in a variety of diseases and intoxications, as for instance, after epileptic paroxysms

(Araki), in acute yellow atrophy of the liver (Schultzen and Riess), in leucemia (Jacubasch), after poisoning from carbon monoxide (Münzer, Palma), phosphorus (Schultzen and Riess, Araki), arsenic, morphine, cocaine, amylnitrite, veratrine (Araki), etc. As the acid has also been found in the urine after excessive and prolonged muscular activity (Spiro, Colasanti and Moscatelli), a condition virtually approaching the morbific state in rheumatism (Prout, Todd, Fuller), there is no reason why it should not be also demonstrable in the urine during defervescence or shortly after an attack of acute articular rheumatism—that is if Prout's contention be true according to which the retention of the sarcolactic acid is the etiological factor of the disease.

In rheumatic fever, the urine which might offer an important etiological clue, is described as highly acid by all authors. However, to designate a urine as "highly" or "weakly" acid without employing an acidimetric unit and a standard of comparison, is inexact, valueless and often misleading.

Urinary acidimetry was performed according to my method[17] with 28 specimens derived from five males affected with acute articular rheumatism. The urine, in each and every instance, was obtained during the first week of the attack, and prior to the administration of alkalies or the salicylates. The highest degree of acidity which I found was 0.76, the lowest 0.29. In the average it amounted to 0.49 degree. Comparing this average acidity with that of the urine of the healthy male which, as determined by the same method, amounts to 0.43, we notice but a very small discrepancy. Taking into consideration also that the urinary secretion during the febrile state is diminished, we may assume that the urine in acute articular rheumatism, as a general rule, does not exhibit an abnormally high degree of acidity.

The greater part of the urinary acidity in acute articular rheumatism seems to be due to its contents of acid sodium phosphate, the acid principle of normal urine. Its output during the pyretic stage of acute polyarthritis is hardly ever increased, although it may seem so when the urine is concentrated. On the other hand the excretion of the total phosphates is always more or less augmented. However, the diurnal urinary density in the mean is hardly ever above 1025 and remains so for forty-eight or seventy-two hours only. Carbamid, it is true, occurs in larger amounts in the urine of rheumatic fever than it does in the normal condition; the deficit in urinary chlorides during the febrile period, however, counterbalances the urea excess, and thus a normal or almost normal specific gravity is maintained. The sulphates are as a rule augmented; I found their increase—occurring in the same ratio as that of carbamid—not so pronounced as have some of the older observers.

The most characteristic alteration in the urine of genuine rheumatic fever is the diminution of the chlorides, a fact which seems of etiological importance. The chlorides are never totally absent, but may be reduced to one or two grams in the twenty-four hours. I have never found more than 4 or 4.5 grams before defervescence ensued. Decrease of chlorides does not occur to any extent in the urines of other rheumatic disorders, so-called, nor in gouty or other articular affections. This feature of the urine, in my opinion, is, therefore, one of the positive diagnostic signs for the presence of acute articular rheumatism, and I maintain, if the urinary chlorides occur in diurnal amounts of seven or eight grams, or more, during the pyretic stage of an acute case of joint disease, that this is not rheumatic fever. In all pyretic states, it is true, we notice some reduction of urinary chlorides, but the only other febrile affection in which a diminution of these urinary ingredients similar to that in rheumatic fever may ensue is pneumonia, especially during the stage of congestion. However, in the latter malady, the urinary chlorides are not materially lessened in many instances.

The deficit in urinary chlorides in rheumatic fever one might explain as being due to the migration of the blood chlorides into the serous effusion. But why, we must ask, are the urinary chlorides not materially diminished in other affections, as in pleurisy for instance, when the serous effusion is frequently much more extensive? This brings me to what we may call the physical factor or factors underlying the production of acute articular rheumatism.

Fibrous and serous tissues are those structures which are principally involved by the rheumatic process. The affection is so invariably limited to these textures that they may be considered essential to its production. However, not all organs into whose structure fibrous or serous tissue enters are invaded by the disease. Those chiefly attacked are the joints and heart; among the former the larger articulations, and in the latter the fibrous valvular and the investing serous structures in particular. Hence, rheumatic fever may be defined as an affection of the fibrous and serous membranes of the most actively engaged parts of the motor apparatus. We may maintain that inelastic or white fibrous tissue, which composes almost entirely the tendons and ligaments and which enters also into the texture of serous and synovial membranes, is the real seat of the rheumatic process. Inelastic fibrous tissue, the only elementary formation contained in all the structures generally involved by acute articular rheumatism, is peculiarly susceptible to the influence of weak chemicals. Inelastic fibrous tissue, as we remember, is made up of various sized wavy and flexible bundles of fibers, each consisting of minute filaments—the fibrillæ. The smaller bundles are held together by interlacing of the fibrils, while the larger ones seem to be agglutinated by a transparent mucous substance. Addition of a weak solution of any acid, as for instance of acetic acid, causes the fibrillæ to swell up, so that the entire particle of white fibrous tissue thus treated becomes an indistinguishable homogeneous mass. The tissue, however, is not dissolved by the acid; for when it is washed with water, or when ammonia is added to effect neutralization, the fibrils become again distinct. Swelling up of the fibrils occurs also if the tissue is placed in solutions of alkalies; the subsequent addition of a considerable quantity of water, however, causes it then to dissolve.

Conditions, analogous in a measure to those artificially induced, may eventually prevail in the organism. While, with the possible exception of some CO_2, acids as such do not exist in the blood (in the most pronounced cases of acidosis even, the blood is still alkalescent), they may readily enough be formed within a limited area, if from any local cause whatsoever, the supply of ammonia or alkali is diminished. Knowing that white fibrous tissue is formidably altered by solutions which are but acidulated, one cannot refrain from picturing a similar possibility in the system, particularly when the acid formation ensues with great rapidity and within narrow limits.

The acid thus produced seems, however, to be rather the consequence than the cause of the rheumatic affection, and an eventual acid alteration of the white fibrous tissue should, therefore, be regarded as a secondary phenomenon, or as a complication. In case local superacidity existed previous to the establishment of the rheumatic process, it must have been the result of a preceding affection or disorder. Such disturbances, both of systemic as well as of local origin, occur not infrequently and although an acid substance may thus become the progenitor of rheumatism, or what is considered as such, it can be never regarded as its primary etiological factor. The unquestionable fact that in rheumatic fever, the transudate and especially the synovial fluid of the affected joint occasionally contains acid in excess while the blood does not exhibit any abnormally low degree of alkalescence, points to the autochthonous production of the acid material. The further clinical fact that the rheumatic process first appears in the more outlying fibrous structures of a joint, and then concentrically progresses towards the synovial membranes, also confirms the assumption that an eventual hyperacidity (noticeable in the exudate only) must be the result of a pre-existing disturbance. That the acid transudate in the synovial sac, for instance, if in contact with the basic membrane may cause certain alterations in the latter, seems plausible; but any damage thus effected, is secondary, or even tertiary to the original disturbance. Besides, the non-existence of an acid exudate in every instance of rheumatic fever, excludes acid fibrous swelling from our further consideration.

The mucous substance cementing together the fibrillæ of inelastic fibrous tissue is readily affected by lime or baryta water, or other weak alkalies. It may thus be completely dissolved out of the tissue. The precipitate of this extract, obtained by acetic acid, consists of mucin. Complete or partial extraction of the agglutinating material is followed by more or less pronounced separation of the fibrils.

The amount of cementing substance varies in the different portions of the organism and in different individuals. In the process of connective tissue production all cellular energy may be directed towards formation of the fibrils, and insufficient amounts of mucous material only may remain for agglutinating purposes. There may be inadequate (both in quantity and quality) cementing material in the white fibrous tissue of many parts of the organism which are not subjected to prolonged or incessant activity; it is evident, however, that such constructive deficiency makes itself first and foremost felt in the habitually engaged parts of the motor apparatus. Deficiency in mucous substance of inelastic fibrous texture seems to be congenital in many instances; however, we shall see in what follows that it may also be an acquired condition. In this event an injury involving a relatively large area of adjacent structures may stand at its foundation; or chemical influences, not unlike to those artificially produced, may give rise to the more or less complete extraction of the agglutinating material. In some of these instances the chemical extraction very likely follows the trauma.

Lack of cementing substance may be readily demonstrated by the microscope as well as by the chemical extraction of the mucous elements. Under the microscope the white fibrous texture may appear as having been subjected to weak solutions of alkalies; the fibrils slightly swollen and loose; the homogeneous ground substance scarce. Treated chemically, but small quantities of extract containing little or no mucin at all are yielded. This deficiency, of course, cannot so readily be demonstrated during or after a rheumatic attack. In some instances even, the hyperemic condition of the invaded textures and the serous infiltration may prevent it altogether.

Congenital deficiency of cement may be accepted *a priori* to be as frequent as any of the other texture anomalies. The acquired condition may either precede the rheumatic attack, or it may be almost contemporaneous with it. It may be due to a variety of causes; among others, probably to an oversupply of calcareous material, as for instance during the formation of callus, or in the active stages of the growth of the individual.

If white fibrous tissue is the actual seat of the rheumatic process, then a deficiency in agglutinating material, in my opinion, is at least one of the essential factors in its causation. Inelastic fibrous texture lacking in cementing substance is more or less changed in its physical behavior. The principal alteration is the one of its permeability. Hence, changes in the permeability of tendons and ligaments, and especially of serous and synovial membranes, stand at the foundation of acute rheumatic fever.

The concentric progression of the rheumatic affection from adjacent fibrous textures towards and through the synovial enclosure—that is, to the point of least resistance—explains why the rheumatic process is generally most severe within the synovial area. Thus it appears that the changes in permeability of the synovial membranes, or their analogues, are more marked then in the surrounding fibrous textures, or that in the joints their peculiar tubular arrangement and the synovia within favor the rapid extension of the rheumatic process.

Structurally, articular synovial membrane is almost entirely composed of connective tissue, of connective tissue corpuscles imbedded in the ground substance, of blood vessels and nerves. It differs, therefore, from the serous membranes in one point only, namely that its internal lining membrane is not formed by a stratum of epithelial cells, that is of real endothelium, but of a corpuscular layer which is of the same material as the underlying part of the tissue. However, the so-called mucilaginous glands, projections from the synovial membrane, contain besides fat cells, an epithelial lining, To the activity of these glands the special synovial secretion seems to be due. In both, the serous and the synovial membranes, the serum-transudation from the blood apparently occurs in a similar manner. But while in the former serum sufficient only to moisten the tissue is transudated, synovia serving lubricating purposes, is usually generated in much larger quantities. Besides, the two secretions differ in their composition, in so far as the synovia contains much more mucin than the serous fluid. Both have an alkaline reaction, contain various albuminous substances, and are relatively rich in crystalline bodies. Synovia is viscid and its composition varies according to the degree of activity of the joint, that is, the more the latter is exerted, the more its quantity is lessened, the more its organic ingredients increase and its inorganic components—water and salts—are diminished.

In acute articular rheumatism, the synovial fluid of the affected joint undergoes marked alterations. It is augmented in quantity and by the infiltration of large amounts of leucocytes it is converted into a turbid, thick liquid and its contents of albuminous substances, especially of fibrinous elements, is greatly augmented. The internal surface of the synovial tube is frequently coated with fibrin. There is little doubt that the fibrin-progenitors occur in relatively large amounts in the blood of rheumatic fever. We know that under normal conditions fibrin, which is an insoluble product, does not exist as such in the plasma; pathologically, however, fibrinogen by the action of fibrin ferment may be intravascularly transformed into fibrin. While fibrin may thus be found performed in the blood of acute articular rheumatism, it is probable that a part of it, at least, is produced in the serous effusion and the synovia.

According to Hammarsten[18], fibrin ferment is the result of disintegrating blood corpuscles. The ferment, thrombin as it is called, however, is not the direct product of the corpuscular elements. These give at first rise to an inactive zymogen, the prothrombin, which in the plasma is converted into the active enzyme. The transformation of the zymogen into the active ferment necessitates the presence of calcium salts. This conversion does not occur if the calcium salts dissolved in the plasma are precipitated by an oxalate. The indispensability of calcium salts in blood coagulation was first pointed out by Arthus and Pagés,[19] and all later investigators agree that the two factors, fibrinogen and calcium salts, are essential to the production of fibrin. They also concur in the acceptance of a third factor participating in the coagulating process, but there is no consensus of opinion as to the nature of this third factor. Inasmuch as the nature of the third agent does not especially pertain to the subject under consideration, I refrain from mentioning the various contentions advanced as to its origin and character.

The calcium salts play an important rôle in the process of coagulation. In the form of a phosphate, calcium is always present in the plasma as well as in the corpuscles. Calcium may occur, however, in the blood in a number of other combinations, for instance, as $CaCl_2$; $CaH_2\ (CO_3)_2$, or as $Ca\ C_2O_4$.

Ringer and Sainsbury[20], and some other observers obtained the most firm fibrin coagulum by treating blood with a 0.6 per cent solution of NaCl and by a weak solution of $CaCl_2$. There is ground for the belief that calcium chloride occurs in increased amounts in the blood just prior and during the height of the rheumatic process. Among the reasons justifying the assumption of an augmented quantity of blood, $CaCl_2$ appears to be the already referred to diminished chlorine output by the urine before defervescence. The limited increase of chlorine compounds in the synovia and the serous exudate in rheumatic fever does not explain the marked chlorine deficit of the urine. Some of the chlorine, at least, seems to combine with calcium and magnesium and is retained in the organism. We know that in rheumatic fever the phosphates occur in the urine in more or less augmented quantities. The phosphates are mostly excreted as sodium compounds. The increased amounts of urinary phosphates seem to point to the retention of the chlorides in the blood.

We possess no definite information regarding any marked increase of calcium in the organism just before the onset of rheumatism; the excess of fibrin and other facts, however, strongly suggest an overplus of, or an increased reactive power of, the calcium salts of the plasma. The same salts of calcium which has given rise to the formation of fibrin, in all likelihood, has also dissolved the cementing substance out of the inelastic fibrous textures. It is even possible that an integral part of the extracted mucous substance, in this instance, serves as the third factor which is essential to the production of fibrin. If this is the case, then the involvement of the white fibrous tissue antedates the appearance of fibrin.

Proceeding upon the basis of these facts and interpretations, the following theory concerning the origin and nature of the rheumatic process, may be formulated:

The rheumatic process is possible only on the basis of increased permeability of white fibrous tissue contained in the habitually engaged parts of the motor apparatus, particularly in that of the serous and synovial membranes.

The altered permeability, or a predisposition to the same, may antedate the rheumatic involvement or it may be of synchronous or almost synchronous occurrence with the latter.

The augmented permeability of this tissue is effected by the calcium salts of the blood which extract the cementing substance from the fibrous texture.

Calcic bodies occurring in loose proteid combination in the blood are thrown out, deposited and temporarily retained in the articular tissues where their reactivity is displayed.

The precipitation of the calcium salts from the circulating blood must be due to its altered composition, which latter may have arisen through any physical or metabolic disturbance.

(The retention of chlorides in the blood and their replacing of the calcium molecule in proteid or other combinations, or likewise their union with the metal itself, may be one of the causes of the precipitation of calcic substances.)

The increased permeability may permit passage of such bodies which diffundate not at all, or with difficulty, only through the unaltered membrane.

Among the permeating substanceswe find fibrin whose occurrence is dependent upon the presence of calcium salts.

The hematic calcium salts aiding in the formation of fibrin very likely are identical with those which effect extraction of the cementing substance. (The extracted material may furnish the third element essential to fibrin production, and thus both processes may be of almost simultaneous occurrence.)

The passage through the texture and into the synovial tubes, or their analogues, and the temporary retention therein, of abnormal quantities of fluid and salts and voluminous bodies like fibrin—practically a state of disturbed osmotic equilibrium for the time being—is speedily followed by all the usual manifestations of acute articular rheumatism.

With the aid of this theory, an explanation of the following facts and clinical features relating to rheumatic fever, may be attempted: (1) The hereditary transmission of the affection; (2) the proclivity to occur during a certain period of life; (3) the inclination to recurrence; (4) the abrupt onset; (5) the fluctuating pyrexia; (6) the synchronous and successive invasion of structures in different parts of the organism; (7) the self-limitedness.

(1.) The hereditary transmission of the affection. Inasmuch as a structural deficiency of nonelastic fibrous tissue stands at the foundation of acute articular rheumatism, and as this deficiency or its causative factors may have been transmitted from parent to offspring, the latter is congenitally predisposed to the malady.

(2.) The proclivity to occur during a certain period of life.—It is an established fact that rheumatic fever infrequently befalls an individual during childhood and after the fifth decennary of life. Its occurrence is, therefore, almost entirely limited to that period of life, when the locomotor apparatus is subjected to its highest degree of activity. If acute articular rheumatism is an affection of the white fibrous tissue of the most actively engaged parts of the motor mechanism, then it is obvious that the disease, if ensuing at all, will make its appearance at that age when the latter is at the height of functional activity. The period of active systemic development, however, must often play a specific rôle in the production of rheumatism; likewise physiological decline, or at least its causative factors, must exert some influence upon the immunization of the organism.

Thus during adolescence, for instance, regeneration of white fibrous tissue may become more or less disturbed, or the surplus of calcium salts not utilized in osseous anabolism, may do injury to the fibrous structures—in fact, a variety of factors may convey the articular textures into a nidus for the disease. On the other hand, the atrophic condition of the tissues in advanced age seems to be averse to the production of rheumatic fever. Moreover, we are in some measure justified in speaking of abortive affections which by their occurrence prevent that of rheumatism. However, I have not in mind miasmatic diseases, or those supposed to be of bacterial origin, but such irregularities which are of a physical or chemical nature. A certain antagonism seems to prevail between the systemic state following the inoculation of vaccine virus and the rheumatic process[21]. Vaccination may thus prove a contributary agent in the prevention of rheumatic fever during childhood. A number of other conditions may temporarily preclude the occurrence of rheumatic fever. A factor inimical to the production of rheumatism, although not limited to early life, is phthisis pulmonum[22].

(3.) The inclination to recurrence.—This is most natural when we consider that the substratum for the rheumatic process, once established, is likely to continue for protracted periods. The re-invasion of the joints may be due to similar etiological moments as have given rise to the original affection; however, each subsequent attack of acute articular rheumatism may be the result of a different exciting cause.

(4.) The abrupt onset.—Individuals hereditarily predisposed to the malady, after attainment of a certain age, are virtually subject to latent rheumatism, a condition characterized by more or less complete absence of rheumatic phenomena which latter may appear at relatively slight provocation. In instances where the anatomical substratum is performed, as likewise in those in which it is produced almost synchronously with the joint exudate, there can naturally arise but few and indefinite premonitory symptoms.

(5.) The fluctuating pyrexia.—The fever which reflects the intensity of the rheumatic process rises and declines accordingly. Temperature elevation may be dependent upon cement extraction and fibrin formation, or upon the passage of this or other pathological constituents through the periarticular and articular tissues. Reduction in temperature is due to the disintegration and removal of these substances. Temperature fluctuation results from production and deposition of abnormal or excessive material alternating with its decomposition or excretion.

(6.) The synchronous and successive invasion of structures in different parts of the organism.—In cases where the underlying defect already existed at the time of articular invasion a number of joints may become affected contemporaneously; in the event that tissue alteration and local inflammation almost concur, the shifting invasion peculiar to the affection will ensue.

Subsidence of the inflammatory process in one joint is most always followed by the active involvement of another. This characteristic phenomenon may be thus explained: The calcium salt causing extraction of cementing substance and fibrin formation occurs during a certain period in such quantities or in such a degree of reactivity as to involve but one joint, or a few at one time. Decline of the local invasion is due in some measure to the attack upon one or more fresh joints. Through this, the abnormal tension in the originally invaded joint becomes diminished. A portion of the exudated fibrin has been disintegrated in the meantime and its decomposition products, together with other organic and with inorganic infiltrators, have transpired through the skin, or have found their way back into the blood current from whence they are partly excreted and partly diffused through the newly-formed lesion.

(7.) The self-limitedness.—The definite course run by the rheumatic process is dependent either upon the extent of the pre-existing anatomical substratum and the activity of the fibrin-calcium factors, or upon the calcium salts alone. In either event, the attack may be expected to persist as long as the reactivity of the calcium salts is maintained.

It was not my intention to dwell in the foregoing upon the exciting factors of the malady. Of these there seem to be legion; indeed, the most insignificant causes may give rise to an attack in those, who on account of structural deficiency in the inelastic fibrous texture of the motor apparatus are peculiarly prone to it. In others, where there is neither an inherited nor an acquired predisposition to rheumatic fever, the primary stimulus is mostly of a more pronounced character. It appears as if one and the same exciting cause may give rise to the involvement of different structural systems in different subjects. Stimuli, analogous to those exciting an attack of articular rheumatism in one person, may provoke affections of an apparent discrepant nature in different individuals. Such affections are frequently but slight deviations from the normal state, and their occurrence, I think, prevents that of rheumatism in many instances.

It was neither my purpose to inquire into the eventual relationship between the rheumatic process proper and the various direct and remote complications. Extension of the morbid process to the heart, that is to those structures which have their analogues in the joints, after all that has been said in the foregoing, cannot be called a complication at all. On the other hand, involvement of the endocardium which has no corresponding texture in the articulations, is a complication, seemingly due to specific factors. The same must be said of a number of other complications, principally of the very frequent tonsillar affections. These and kindred pathological conditions may be of bacterial origin, or they may furnish a nidus for the bacterial invasion of the organism. The various pathogenic micro-organisms whose occasional presence in rheumatic fever has been demonstrated by trustworthy observers may have thus gained entrance into the organism; acute articular rheumatism, as such, however, does not seem to be a bacterial disease.

I am cognizant of the fact that the theory propounded in the foregoing is hypothetical to some degree, and that it still requires elaboration in several respects; however, it is founded upon much less hypothesis than are both the bacterial and the lactic acid theories, and it explains the clinical phenomena much more rationallv than either of them.

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THE COMPLICATIONS AND SEQUELÆ OF ACUTE CROUPOUS PNEUMONIA.

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ABOUT a year ago one of us (Hare) published in the MEDICAL NEWS, in conjunction with Dr. Landis, a paper on the "Sequelæ of Typhoid Fever" (see MEDICAL NEWS, June 15, 22, 29, 1901), which formed a sequel to a book upon this topic, published a year before on the same subject by one of the authors (Hare) of the present communication. The present paper is a study of the complications and sequelæ of another very common acute infectious disease.

General statistics in regard to every phase of croupous pneumonia are much diminished in value by reason of the fact that Boards of Health and physicians are not cautious in separating croupous pneumonia from catarrhal pneumonia, acute pneumonic phthisis, pulmonary edema, and even hypostatic congestion occurring in those various diseases in which this complication arises. The result of this is that the death rate under the term "Pneumonia" often represents a mortality produced by a number of severe pulmonary diseases and complications rather than that produced by one distinct malady. In the collection of the statistics contained in this paper the greatest care has been exercised to exclude as far as possible instances in which there was doubt as to the disease being true croupous pneumonia.

While we are wont to think of croupous pneumonia as a disease from which the patient dies or speedily recovers, rarely suffering any secondary affections, and while it is true that the malady does less commonly result in secondary manifestations than does typhoid fever, it is also a fact that the pneumococcus produces not infrequently interesting complications and serious after effects.

The symptoms manifested at the onset of an attack of croupous pneumonia depend largely upon the age, the temperament, and the constitution of the patient; his mode of life and the degree of severity of the infection. These various factors form the most valuable basis, upon which the diagnostician can determine the type of the invading malady, and so skilfully compare the relation between vital resistance and intensity of infection.

Thus a frank, sharp attack of pneumonia is usual in children and adults of good constitution, while the more insidious forms of the disease are very prone to seize upon the more delicate, and those whose vitality has been sapped by previous illness. Croupous pneumonia of the asthenic type usually occurs in persons of low vitality. In those of a neurotic temperament the infection most frequently presents numerous atypical symptoms; while the alcoholic subject manifests anomalous symptoms peculiar to his habit.

Rare between the ages of five and 14, croupous pneumonia progressively increases in frequency after the latter age, until it reaches the sixty-fifth year of life, when it is said to attain its maximum.

Croupous pneumonia is rarely observed in children under two years of age. Playfair[1] found only two cases in a series of 30 cases in children; Schlesinger[2] confirms this from an analysis of 173; and Holt[3] from observations of an equal number regards it as unusual prior to that age. Occasionally it is transmitted from the mother to the fetus through the placenta. Netter[4] gives the history of a sixth-para with a well marked croupous pneumonia, crisis occurring upon the sixth day; upon the ninth day the patient gave birth to a seven and a half or eight months' child, living and well developed; the child died when five days old, and an autopsy showed pneumonia located in the right upper lobe with fibrinous coating of the bronchi; bilateral fibrinous pleurisy; pseudo-membranous pericarditis, purulent cerebro-spinal meningitis and bilateral otitis. The right heart contained a fibrinous clot like that seen in the pneumonia of adults. Microscopical examination, as well as cultures, revealed the presence of encapsulated cocci, but no cocci could be found in the placenta or in the vessels.

Croupous pneumonia occurs most frequently in children at the age of four years, diminishing greatly after the fifth year, Holt having found but 13 cases beyond the age of five years in his series of 173 cases. Children of good constitution are most frequently infected with this form of pneumonia.

In a robust individual, a frank pneumonia is ushered in with a chill and an associated rise of temperature with pain in the affected side. There is noted a pronounced acceleration of the respiration. The rapid respirations and the slow pulse rate are pathognomonic of the affection. The temperature rises with marked rapidity to the fastigium, and is there maintained with but slight morning remissions, until the occurrence of crisis, although in some cases a temporary remission, called pseudo-crisis, takes place.

Aberration in Onset of Disease.—In distinction from this classical mode of outset it is interesting to study the atypical cases observed by many clinicians: Thus, Hood[5] observed a number of cases with pronounced hemoptysis as the initial symptom; and West[6] and Johnson[7] have subsequently reported similar cases. Of the series of cases mentioned by Hood, one half were true croupous pneumonia, occurring in individuals with an excellent family and personal history; while in the other cases, the hemoptysis and pneumonic infection appeared to be but the forerunners of grave pulmonary involvement of a tuberculous character. The cases which eventually proved to be uncomplicated attacks of croupous pneumonia and not tuberculous disease, began suddenly with hemoptysis accompanied with an elevation of temperature, with dyspnea and with the development of the physical signs of consolidation usually at the apex. In one instance occurring in a male thirty-five years of age, the patient began to cough while at breakfast, and was seized with a hemorrhage of a half pint or more of fresh blood; the hemorrhages were repeated from time to time and finally ceased with the defervescence of fever after the sputum had passed through the various stages of pigmentation from bright crimson to a prune-juice color. The left upper lobe was consolidated and presented the usual physical signs of croupous pneumonia; the disease ran a practically typical course and ended by crisis on the seventh day, the lung finally becoming entirely well. In two other robust males with the pneumonic consolidation located at the apex, profuse hemorrhage occurred at the onset together with a rise of temperature to 101.5° F., and the usual symptoms and signs of croupous pneumonia. The infection terminated by crisis about the usual period and both were discharged in a satisfactory condition. One of these men was two years subsequently accepted for life insurance by Hood. In another case described by the same author the shivering and fever of onset were followed by severe hemorrhage which he thought shortened the course of disease.

The case reported by West began with a flow of frothy bright-red blood, elevation of temperature and dyspnea. On the third day as much as five ounces of viscid blood were raised at one time, and the hemorrhage continued until death. On a postmortem examination of the lungs no cavity was found and no condition was discovered that would explain the occurrence of the hemoptysis except the hepatization of the left middle and lower lobes. Old adhesions of the pericardium and pleura were also found, together with recent vegetations upon the aortic and mitral valves. The left pleural cavity contained a pint and a half of turbid serum. The apex of the right lung contained an old calcareous nodule. The kidneys were normal. The question arises in such cases as these whether the consolidation of the lung is not due to the extravasation of blood.

The occurrence of gastro-intestinal disturbances is rarely seen at the onset of croupous pneumonia in the adult, though not uncommon in children. Smith[8] mentions a case in a man twenty-two years of age who had partaken largely of lobster salad. Six hours later he had a chill with vomiting and purging and a rise of temperature to 105° F. and a pulse of 140. Morphine was given to relieve the gastro-intestinal pain; the disease subsequently ran the usual course and ended in recovery. The gastro-intestinal symptoms were attributed to the lobster salad, and it is highly probable that such is the correct explanation, but it is interesting to note that Packard[9] observed two cases with very marked abdominal symptoms at the onset of the pneumonic infection. In one case there was marked tympany but no pain; in the other a man of forty years was suddenly seized with violent pain in the hepatic and umbilical regions; the thighs were flexed upon the abdomen and the abdomen was exquisitely tender to pressure, and the right flank and hepatic region presented a marbled appearance with distention of the superficial veins. Examination under anesthesia revealed nothing abnormal. Pneumonic consolidation appeared the following day. No chill was observed; there was an entire absence of cough and expectoration throughout the course of the disease. The fever was moderate, respiration not much accelerated and no dyspnea was noted.

Edematous laryngitis appearing at the onset of croupous pneumonia is reported by Thornton[10] to have occurred in a woman thirty-five years of age. Infection was announced by a chill, dyspnea, sore throat and hoarseness. The larynx was examined with great difficulty owing to a swollen condition of the epiglottis. The dyspnea was so urgent that tracheotomy was performed. This afforded instant relief, but the temperature, which previous to the operation was 101° F., immediately rose to 105° F. After the lapse of 64 hours the tracheotomy tube was removed the laryngeal edema having subsided to the extent that normal respiration was possible. Crisis occurred upon the seventh day. The urine was albuminous for three days.

Dorange[11] mentions the case of a man twenty-eight years of age, in whom tracheotomy became necessary to relieve the dyspnea. Pneumonia developed and ran its usual course to complete restoration to health. One month later a second pneumonia developed involving the same region as was first attacked.

An unusual case of purpura hemorrhagica was observed by Jaworski[12] in a man aged twenty-seven years, at the onset of croupous pneumonia with the consolidation occupying the middle lobe of the right lung. While making an excavation the patient was seized with a severe chill followed by profuse bleeding from the nose and mouth and loss of consciousness. On the following day the hemorrhage was repeated several times, and in addition pain in the right side of the chest, general weakness and depression manifested themselves. The skin was pale and somewhat moist. Upon the lower part of the body, from the umbilicus downward, were numerous subcutaneous hemorrhages, varying in size from a pinhead to a lentil. There were also hemorrhages beneath the conjunctivæ, into the sclera and beneath the mucous membrane of the inferior surface of the tongue and lower lip. Neither the gums, palate, nor larynx presented any changes or lesions. The tongue was dry and covered with a coating with which coagulated blood was mixed. Blood constantly trickled from the nose. There was considerable frothy, blood-stained expectoration. The urine was blood-stained and contained red corpuscles. The patient grew progressively worse and died in five days from exhaustion. The history and symptoms excluded phosphorus poisoning, arsenical poisoning, scorbutus and typhoid fever. The necropsy confirmed the diagnosis of croupous pneumonia complicated by purpura hemorrhagica. Bacteriological examination was not made.

Retention of urine, though not of common occurrence in the onset of croupous pneumonia, is mentioned by Johnson[13] as having been observed in two brothers with neurotic family history. Brothers and sisters of the patients were affected with petit-mal, epilepsy and impediments of speech. In one of the brothers, a lad of nineteen years, hemoptysis occurred at the onset and lasted for two days; complete retention of urine was present from the first, and catheterization was necessary three times a day for six days during the height of the infection. After the defervescence of the fever the urine was voided normally. The consolidation was located at the right base and complete recovery resulted. In the other brother, twenty-two years of age, blood-streaked sputum, high temperature and complete retention of urine appeared simultaneously; catheterization was necessary three times a day for nine days, pneumonic consolidation occupied both vases. The disease terminated in recovery.

Fernet[14] describes croupous pneumonia and herpes zoster appearing simultaneously; herpes of the palate and throat and also of the nose and external genitals. On the right side of the chest along the course of eighth intercostal nerve, herpatic vesicles developed which remained until the fourteenth day, eight days after the crisis. The pneumonic consolidation occupied the right lower lobe.

In early childhood, the initial chill, so constant in the adult, is but rarely observed at the onset of croupous pneumonia, but vomiting and various gastro-intestinal disturbances, or nervous manifestations, such as convulsions, twitching of the muscles and coma are frequently observed. In many cases the nervous symptoms predominate and assume such a marked resemblance to meningitis, or cerebro-spinal meningitis, that in the beginning the diagnosis is by no means clear, the absence of cough, and the late appearance of the physical signs only adding to the confusion. Various theories have been advanced to explain the profound nervous symptoms. Aufrecht[15] believes that the production of profound nervous symptoms are the result of edema of the brain brought about by a change in the composition of the blood, or by obstruction to the return of venous blood from the brain by the apical consolidation. This latter theory is not entirely borne out by the clinical experience of others, as in Russell's[16] case of cerebral pneumonia with well marked nervous symptoms, the consolidation occupied the right lower lobe. Playfair has not observed profound nervous symptoms in apical pneumonia more frequently than in those occupying the base, and some think that such an occurrence does not take place because the nervous symptoms appear at the onset at a time when the physical signs cannot be discovered for several days. Our experience is that mental symptoms and apical lesions are commonly associated in children. Frequently the nervous symptoms subside with the development of physical signs. Holt's experience leads him to believe that the proportion of lung involvement has little influence upon the production of nervous symptoms. The recent advancement in the study of pneumococcus infection tends to show that the toxemia and not the proportion of lung involvement is responsible not only for the marked nervous manifestations, but also for the dyspnea and great acceleration of the respiration.

Two apparently distinct types of meningitis are found as complications of croupous pneumonia; one appearing at the onset of the disease, the other during the active or post critical stage. The former variety is seen most frequently in children, and is probably symptomatic; it is rarely fatal, and therefore its pathology is somewhat uncertain. On the contrary, meningitis developing during the course of the well developed infection is generally the result of meningeal infection, and is very frequently associated with endocarditis, as pointed out by Osler, or by diffuse metastases.

Numerous cases are on record of croupous pneumonia in children which at the onset simulated meningitis, cerebro-spinal meningitis, and even hemiplegia. But the subsequent appearance of local physical signs, the pulse and respiration ratio and the crisis, marked a sudden fall in temperature about the eighth day, confirm the diagnosis of croupous pneumonia. The favorable termination in many of the reported cases has not permitted an adequate pathological investigation, although meningitis due to the pneumococcus, is well recognized. In Wublad's[17] case, terminating fatally, no autopsy is recorded. Russell recorded a case of cerebral pneumonia occurring in a boy of ten years of age in whom the initial symptoms were intense headache, nausea, and vomiting of a greenish fluid, and the appearance of herpes at the angle of the mouth. On the fifth day physical signs were discovered occupying the right lower lobe. Crisis occurred upon the seventh day and convalescence was established and progressed favorably to complete recovery.

Wublad records a fatal case occurring in a child two years of age, who presented well marked symptoms of meningitis beginning with convulsions several days prior to the development of physical signs. Starr[18] mentions a case of cerebral pneumonia observed in a boy 17 months old with a family history of tuberculosis disease in which the infection became manifest by anorexia, vomiting, diarrhea, and slight cough; the child showed some tendency to retraction of the head, and often awoke crying and sometimes screaming, *tache méningéale* was absent; the pupils were equal and reacted to light, but twitching of the hands and arms was noted. Upon the appearance of the physical signs in the right upper lobe the meningeal symptoms began to abate.

Tuberculous meningitis was first suspected, but was subsequently excluded by the absence of squinting, irregularity of the pupils and the *tache méningéale,* and by the presence of cough and the characteristic rapid respiration in relation to the comparatively slow pulse rate.

Raven[19] describes a case of cerebral pneumonia in a boy of seven and a half years, beginning with rigors, pain in the head, bilious vomiting, delirium and restlessness on the 15th day. Indistinct physical signs were apparent at the right apex, insensibility, widely dilated pupils, and convulsions. The infection ended by crisis on the eighth day. Fenn[20] observed pronounced meningeal symptoms in a girl two years of age. Fever and loose bowels appeared at the onset, together with stupor, tossing of the head, staring eyes, and divergent strabismus. Later the child became rigid. On the third day signs of consolidation appeared at the right apex. *Tache cerebral* was well marked, and the temperature reached 104°F. On the sixth day the temperature fell to 96° F. with improvement in the meningeal symptoms, but on the seventh day they reappeared. Hood[21] mentions several cases occurring in children in which severe cerebral symptoms began at the onset; the lung lesions were located at the apex. Morris[22] describes three cases simulating meningitis; in the first case the upper lobe was involved; in the second physical signs did not appear until the sixth day, and were then discovered in the right upper third; in the third case the physical signs were equally late in their appearance. These cases were characterized by stupor lasting about seven days, with occasional attacks of screaming, delirium and vomiting. The muscles of the neck were rigid, and thighs flexed upon the abdomen, which was distended and tympanitic. All of them recovered.

Preble gives the history of case in which meningitis, pericarditis and multiple arthritis were associated. The patient, a female forty-three years of age, suddenly developed severe frontal headache and vomiting, the latter continuing for 36 hours. There were well-marked delirium, rigors, pain, and redness of the joints. The urine contained a trace of albumin, fine and coarse granular casts. The pupils were unequal, the right being the largest; both reacted to light however. There was rigidity of the neck, but no paralysis. Kernig's sign was absent. There were slight external strabismus, right-sided ptosis, choked discs, and the head was turned to the right. Lumbar puncture revealed extracellular pneumococci. Both bases were the seat of pneumonic consolidation. The heart was normal with the exception of accentuation of both sounds. Pericardial friction was noted. Puncture of the left wrist joint revealed the presence of pneumococci in the whitish muco-pus that exuded. Smears of the blood also showed the presence of pneumococci. The autopsy revealed a small purulent pericardial effusion. Involvement at both bases and an old healed tuberculous nodule at the right apex. The kidneys showed acute degeneration, the brain a diffuse purulent meningitis, and the joints a multiple arthritis. Bacteriological examination showed pneumococci in the blood, pericardium, meninges and in the joints.

In another case observed by Preble, there were purulent cerebro-spinal meningitis, acute endocarditis, pulmonary edema, and cloudy swelling of the kidneys at necropsy. The following clinical history was obtained: The right eye was closed; the heart was normal, as was also the spleen. Friction and dulness were heard over the left lower lobe. The liver was slightly enlarged. The pulse was 80, temperature 102° F., respiration 32, all rising gradually until death.

Complications During the Course of the Disease.—The complications arising during the course of croupous pneumonia are alike in the adult and in the child, generally being pneumococcus infections or intoxications. While each decade of age seems to have its characteristic train of nervous manifestations, the complications appear in both with such a uniformity as to exclude separation into the complications of children and adults. The complications occurring during the course of the disease are also grouped not according to age, but classified according to the anatomical location of the lesion.

In many of the cases of pericarditis occurring in the course of croupous pneumonia, the edge of the lung overlying the pericardium is found in a state of pleuro-pneumonia, and for this reason pericardial involvement is supposed to be due, in many cases, to direct extension; it may also be the result of general infection or metastasis by the blood vessels. The existence of pericarditis may be unsuspected during life and only discovered postmortem. There are no early characteristic symptoms but pain and precordial distress are sometimes present. The diagnosis must be made chiefly from the local physical signs. Friction may be heard in dry pericarditis or before effusion is considerable. When the accumulation is extensive, definite increase in the area of cardiac dulness is clear. Not rarely, however, the presence of either of these complicating secondary infections may be unsuspected during the patient's life. Thus Thayer[23] was only made acquainted with the presence of pericarditis in one of his cases of croupous pneumonia, when the autopsy disclosed a thick layer of pyogenic membrane over the visceral pericardium, with a large quantity of pus in the pericardial cavity. In Manges'[24] case, in which the right base and left apex were affected, the disease followed the typical course until resolution occurred. At this time a friction murmur was discernible at the base with an irregular pulse. About the 23d day there was an acceleration of the heart beat and symptoms of sepsis were apparent. One week later the following phenomena were observed: pronounced dyspnea, vomiting, irregular pulse, and a marked increase in the area of cardiac dulness. Paracentesis was performed and eighteen and one-half ounces of fluid were removed. An examination of this exudate showed that it contained a pure culture of Fränkel's pneumococcus. Relief was temporary, but rapid recovery followed the operation of pericardiotomy, when forty ounces more of the fluid were removed from the sac. In the case of Fawcett and Steward[25] the disease was marked at the right base. Friction sounds were absent. Ten days later exploration was decided upon owing to a marked increase in the area of pericardial dulness. Upon pressure an exquisite tenderness was elicited over the epigastrium. Exploratory puncture revealed the presence of pus. A portion of the fifth costal cartilage on the left side was removed; the infected area was incised and drained. Fourteen days later an empyema, small and localized, and due to streptococcus invasion was discovered on the right side. The autopsy showed that the pericardium was rapidly clearing up. Sturgis[26] has reported a case of pronounced pericarditis in an alcoholic who suffered from the graver nervous manifestations, so often encountered in persons addicted to alcoholic excess. Venturi's[27] case had a meningitis complicating the pericarditis. Convalescence proceeded until the 16th day, when rigors occurred in conjunction with an elevation of temperature which was the warning signal of an effective process. This infection proved itself to be pericarditis, associated with a meningitis. The exudate was proved to contain the pneumococcus by culture tests and by the subsequent inoculations of rabbits with this exudate. It may furthermore be stated that in an elaborate study, Myers[28] has found that in 500 cases, 58 per cent. were bilateral and that 27 per cent. resulted fatally. Pericarditis was observed in 11 of these cases and endocarditis was present in 41 cases. Of these the mortality was 40 per cent. At the Mt. Sinai Hospital out of six cases of pyopericarditis, there were three recoveries. Satterthwaite[29] has reported 55 fatal cases of croupous pneumonia, death in 10 of these cases being directly attributable to the involvement of the pericardium.

As has just been observed the occurrence of endocarditis is a not infrequent and important accompanying condition of croupous pneumonia. In Sainsbury's[30] case, three days after the termination of the pneumonia, there occurred rigors, elevation of temperature, profuse sweating and pain in the left axilla; there was a daily chill and an exacerbation in the temperature to 103° F. or over; falling again rapidly. There was absence of tubercle bacilli in the sputum. At the 20th day a blowing sound was heard at the base, which was systolic in time. Exploratory puncture of the pleura revealed some blood-stained fluid. The temperature rose to 105° F., with coldness and lividity of the extremities. Examination of the eyes revealed unequal pupils, external strabismus, and an absence of optic neuritis. Before death the temperature attained a height of 106° F. The autopsy showed a healthy brain, with the lesions of meningitis, especially well marked upon the convex surface; no actual pus could be found. The heart was softened and showed friability. Greenish vegetations were present upon the aortic segments, complicated by a small aneurism of the valve. The lungs showed the usual pathological changes incident to this infection. There were dense pleural adhesions upon the right side. Microscopically there were found a large number of short bacilli all of one kind, arranged end to end or in short chains. The meningeal exudate showed the presence of pus cells and a limited number of various microorganisms. Cultivation yielded the *staphylococcus pyogenes aureus.*

A case of pyopericardium complicating pneumonia reported by McConnell[31] had the following history: The patient, aged thirty-three years; crisis occurred on the ninth day. On the day following there was evident a pericardial friction sound, with absence of endocardial murmurs. On the twentieth day there was found a large pericardial effusion, which gradually increased with an abatement of the pulmonary symptoms. Pericardial dulness extended from the upper margin of the second rib above, to the liver below; the latter was depressed about two inches. At the level of the fourth rib, the dulness extended from a point one and three-quarter inches to the right of the sternum, to a point one inch to the left of the nipple. The patient was unable to swallow solid or liquid food, as it produced pain and frequently regurgitation through the nose. Paracentesis was performed and six ounces of creamy pus were removed, Fränkel's pneumococcus was found in pure culture. The fluid gradually reaccumulated; incision was performed, and sixty-six ounces of pus were evacuated; a drainage-tube was inserted and improvement took place. There was little constitutional disturbance.

Garrod[32] made cultures from the pus in the middle ear and from the heart's blood, and found colonies of pneumococcus, some streptococci and the *bacillus coli communis.* Sections of the cardiac vegetations revealed numerous diplococci. Septicemia with ulcerative endocarditis is discussed by Purser,[33] who found that the crisis upon the ninth day was associated with partial collapse, and that 10 days later, a murmur in the aortic area, systolic in time, was present, which became progressively louder. Prostration, delirium, and pyemia ushered in the fatal termination. Much interest was centered in the autopsy; encapsulated pneumococci were present in every organ under examination. Adhesions had completely obliterated the pericardial sac. The auricles were soft and friable. The right posterior cusp of the aortic valve was filled with vegetations and revealed a perforation. Marked splenic enlargement with infarcts were observed. An infected embolus showing the presence of pneumococci was discovered in the primary branch of the splenic artery. Finley's[34] case pointed strongly to the existence of a malignant endocarditis when he found that two distinct rigors had taken place upon the 11th day of the disease. In this case large polypoid vegetations were massed upon the tricuspid valve with absence of dilatation or stenosis. Lance-shaped diplococci were found; they were about twice the size of the pneumococcus, suggesting the so-called involution forms. Osler[35] in his Goulstonian lectures avers that 54 out of 209 cases showed the presence of endocarditis. Netter[36] has collected records of 73 cases in 50 years. In seven the valvular vegetations revealed that throughout their entire thickness the lanceolate lozenge-shaped bacilli found a habitat, disposed in pairs. Their enclosing capsule resisted the action of stains. The same organism was also found in the lungs.

Clarke[37] reports a case of croupous pneumonia with general infection in a case in which there were found after death resolving pneumonia, meningitis, and acute endocarditis of the mitral valve. In these lesions the pneumococcus was found. The complication came on ten days after the onset of pneumonia. Clarke further states that in his experience of this complication it did not appear at the onset, but was a secondary phenomenon. We may, therefore, conclude that endocarditis is the result of direct action of the pneumococcus or its products upon the endocardium. This complication is commonly associated with general infection, and the blood frequently is found to contain the pneumococci which are deposited in the endocardial vegetations.

Endocarditis may be present without evidences of its existence, physical signs may be absent and temperature variations can hardly be characteristic during the active stage of the pneumonia, but may become apparent after the defervescence. The association of endocarditis and meningitis as pointed out by Osler is interesting; while endocarditis is associated with meningitis in seven-ninths of the cases; meningitis developing as a primary complication is not to the same extent accompanied by endocarditis.

The pulmonary lesions of croupous pneumonia extend to the visceral pleura with such frequency that pleuritis can hardly be termed a complication of the disease, but rather, a part of the morbid process. Much of the pain experienced throughout the course of the disease is pleurogenic, and the extremely rapid respiration characteristic of pneumonia is in part dependent upon the effort of the patient to restrain the respiratory act. The pleural inflammation is usually attended with some serous effusion, but not in sufficient quantity to give characteristic local signs; rarely is the accumulation sufficiently extensive to cause displacement of the heart or liver or to obliterate Traubé's semi-lunar space.

In extensive accumulations there is an absence of respiratory sounds; decreased or absent resonance and fremitus. Skodaic resonance may be present at the summit of the effusion. In the dry stage pleural friction may be heard upon deep inspiration. Of the subjective symptoms pain, increased by attempts at deep inspiration, is rather constant; occasionally paroxysms of cough accompany effusions into the chest.

A remarkable case of pleuropneumonia, complicated with pleuritic effusion of the opposite side, is reported by Sellew.[38] A child nine months old, became suddenly ill. Vomiting, diarrhea and tonsillitis were noted at the onset, but four days later labored respiration and a short cough developed. The local physical signs were limited to a small area on the right side, where dulness, bronchial breathing and a few mucus râles were found. The child died upon the fifth day and the autopsy revealed a left pleural effusion serous in character, amounting to three ounces, which compressed the lung to such an extent that the anterior half only was aerated. The right lung was the seat of extensive and severe pleuropneumonia, the entire lung being in a condition of red hepatization, without any aerated portion. The peri- and endocardium were found perfectly normal. The physical signs of serous and purulent effusions are identical and exploratory puncture is the only positive means of discrimination.

Cases terminating in empyema frequently end by lysis, rather than by crisis, and the temperature of defervescence merges into a fever of the remittent type, which may continue with a morning rise and an evening exacerbation until the pus is evacuated. Rigors or chills are not common; in fact they are usually absent. The fluid of an empyema is usually sweet pus; pneumococci have been usually discovered, associated with pus bacteria in some instances, while in others bacteriological investigations have been entirely negative.

Empyema as a complicating process is worthy of most marked attention. The prevalence of its occurrence shows that a closer study of the subject is desirable. The following statistical table prepared by White,[39] taken from the enormous clinic of Guy's Hospital, merits careful attention:

	1898	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887	1886	1885	1884	1883
Total number of cases of croupous pneumonia	122	115	114	100	67	182	88	108	88	60	43	72	48	39	26	69
Cases complicated by empyema	3	7	3	6	2	9	2	6	1	1	1	2	....	....	1	1
Percentages	2.46	6.08	3.63	6.0	3.0	4.94	2.27	5.5	1.13	1.6	2.3	2.9	....	....	3.8	1.4

In 45 cases of empyema, the main symptom was an elevation of temperature, and following the crisis a morning elevation of 1° or 2° F. An evening exacerbation of from 2°, 4° or 5° F. occurred. This continued until the evacuation of the pus. One case in the 45 had an unsuspected pyopericardium. Three of the 45 developed pneumococcic endocarditis. One of these showed no valvular lesion, but the presence of infecting aneurisms denoted general infection; another showed gluteal abscess (pneumococcic) and the third resulted in pneumococcic inflammation of the ankle.

Hood[40] presents seven interesting cases worthy of consideration. In one instance a woman six months in pregnancy, had, in the third week following, a pneumonia that terminated by lysis, marked dyspnea, and displacement of the heart. Aspiration was performed and two pints of sweet pus were removed. The temperature gave no evidence of purulent effusion. In the second patient there was displacement of the heart. Aspiration was resorted to and one pint of sweet pus was drawn off. The following day two additional pints were removed. In a third case, four ounces were obtained by the hypodermic needle. In a fourth patient with violent maniacal delirium, three pints of pus were aspirated and the chest freely opened. Hood's next two patients ran a typical course for a week and ten days respectively. In neither case was a septic temperature evidenced. In the one instance a pint of sweet pus, followed the next day by the removal of two additional pints; in the other case four ounces were aspirated. The last of this series was a case in which convalescence was interrupted by pericarditis. On the 28th day of the disease a cough, resembling whooping-cough, developed; a free opening on the 35th day was resorted to and three pints of pus were aspirated.

Penzoldt[41] says that in a number of cases where empyema was the complication, the infection presented a most severe type. In some of these cases the characteristic temperature fall, indicative of the crisis, failed to evince itself, but as is often the case, nothing else pathological presented itself to cause a suspicion of the presence of pus. He believes when dulness continues, it is imperative to explore, especially when in conjunction with this physical sign is found associated persistent bronchial breathing with evidences of some fever and loss of strength and flesh.

Drummond[42] makes mention of a case which illustrates the value of puncture in obscure cases. In the second case, a male, aged nineteen years, had an exacerbation of temperature on the seventh day. There were then noted restlessness, delirium, cyanosis, and physical signs pointing to involvement of the right middle and upper lobes by extension. Lysis began on the eleventh day. Exploration of the chest was performed and pus obtained. Paracentesis was determined upon and thirty ounces of pus were withdrawn. A negative result was obtained by puncture upon the fourth day; the same result was given eight days later. Gradually the dulness disappeared. The patient made a good recovery. Bradley's[43] case had croupous pneumonia with pleural involvement. The patient gave a history of alcoholism, and there was bulging of the chest wall, with dulness on percussion. Aspiration failed to give any evidence of fluid accumulation. Three days later the temperature rose from 100 to 103.2° F. Twenty days following the crisis, pus was evacuated through a bronchus. Eight ounces were expectorated in the 24 hours, gradually decreasing until the 13th day, when it ceased entirely. After rupture, the convalescence progressed favorably.

Luigi Mazotti[44] tells of three robust men of thirty-four or thirty-five years of age in whom empyema revealed itself two days after defervescence. In all three cases, the pus burrowed its way into the bronchial tubes without any evidence of pneumothorax, and in three or four months perfect recovery ensued. In one case, that of an enfeebled man aged sixty-two years, the case terminated fatally. Chills and pains were absent and there was but little dyspnea. A creamy pus, greenish but odorless, was found. Croupous pneumonia followed by empyema, with crisis upon the tenth day, without amelioration in the general symptoms is recorded by Holt[45]. The patient, a girl of two years of age, presented exaggerated breathing over the left lung, and a markedly dull note, amounting to almost actual flatness, with the exception of the extreme apex, where percussion elicited tympany. There was displacement of the heart to the left. Pus was discovered by exploratory puncture. A half pint of pus was evacuated by incision. Improvement was evident for a few days, followed by a fluctuation in the temperature curve between 103° and 105° F. for a period of five days, at the end of which time the pneumonia terminated fatally on the 21st day of the illness.

Gangrene and Abscess Formation in the Lung.—These are two very important and serious lesions which unfortunately are not of uncommon occurrence in connection with cases of croupous pneumonia. Eisendrath[46] has analyzed 96 recorded cases of pulmonary abscess, gangrene and bronchiectasis following croupous pneumonia. When the totals are computed as to percentage of recovery, the result is quite striking, especially in the more acute cases; they are as follows:

		Per Cent.		
	Cases.	Recovered.	Impd.	Died.
Acute simple abscess	25	96.0	4.0	....
Acute gangrenous abscess	28	71.4	7.2	21.4
Chronic simple abscesses	14	42.8	21.4	35.8
Chronic putrid abscesses with bronchiectases	26	50.0	15.3	34.7

Eisendrath found from his review of the subject that the symptoms usually came on after the crisis and consisted in a post-critical rise in temperature which then became remittent in type. The sputum became purulent, and there was a distressing cough accompanied by expectoration of pus in large quantities. If the abscess cavities do not communicate with a bronchus, there is but little expectoration. There is in all cases emaciation, loss of appetite and a rapid decline in strength. If the abscess becomes chronic, there may be recurrent attacks of fever, with a great deal of expectoration.

Physical examination is rather disappointing. The pulmonary lesions following pneumonia are most frequently in the lower lobes, and this is of some aid. There are no typical physical signs, owing to the fact that the cavities, be they due to abscess, gangrene or bronchiectasis, may be near the surface, or quite deeply situated, and may or may not communicate with a bronchus. Dulness, decreased respiratory mumur, vocal resonance and fremitus are present in the majority of cases, but we may have bronchial breathing. The most reliable sign is the presence of large, moist râles, not infrequently metallic in character. Another striking feature is the variability of the physical signs, at one time dulness and then tympany at the same spot. Clubbed fingers develop quite early, as do also pressure symptoms on the heart, liver and spleen.

Gangrene must be suspected when there occurs a rise of temperature, a few days after the crisis, and the breath becomes fetid. The sputum is also fetid and divides itself into the characteristic three layers.

In bronchiectasis following pneumonia, the sputum may be fetid at times, but the odor is not so penetrating and there are no elastic fibers.

The physical signs of the three conditions are very similar. In bronchiectasis there is usually a history of long-continued expectoration of large quantities of pus. This, however, is not characteristic, for the same may be true of chronic simple abscess. The frequency of hemoptysis in cases of gangrene is due to the fact that the vessels are more apt to pass freely through the cavity, owing to the more rapid destruction of tissue.

The following two cases reported by Holt[47] of gangrenous termination of croupous pneumonia are not without interest:

Case 1 was that of a female, aged two years, who had a maximum temperature of 106° F. On the sixth day friction sounds were recognized over the right upper lobe with indications of extension into the middle lobe in front and the lower lobe behind. Upon the seventh day pronounced prostration was present which gradually became intensified until the occurrence of death, upon the 12th day. Autopsy: The right chest contained 16 ounces of sweet pus, which occupied two cavities; the smaller one just below the sternum contained only half an ounce. The visceral and parietal layers of the pleura were covered with a thick, shaggy layer of fibrin and pus. The only abnormality found in the right lung was compression of the lower lobe. The entire upper lobe and upper half of the middle lobe had undergone hepatization and presented a brownish-red color. Upon section, the upper lobe revealed three or four gangrenous areas occupying the center of the lobe. The largest of these had a diameter of three-quarters of an inch. An evident antemortem thrombosis had occurred: there being discovered in the largest artery that led to this region and adherent to it a thrombus with white fibrin. A wedge-shaped gangrenous area presented itself at the lower border of the upper lobe, which extended to the surface of the lung. A similar thrombus was found in the vessel here. Some edema of the left lung above was apparent with congestion below. Microscopical examination of the lung showed preponderance of the fibrinous elements, the alveoli presenting but few round and epithelial cells.

Case 2.—Male, three years of age. After one week's time prostration became extreme and in two weeks terminated fatally from pulmonary edema. There was no expectoration, no fetor, no dropsy, and no variations from the normal amount of urine passed. Upon postmortem there was found a sacculated pleurisy, occupying the lower and posterior regions of the right chest, containing five or six drams of a dirty-brownish serum. Throughout almost their entire extent both lungs were adherent to the chest wall. The left lung was adherent to the diaphragm. The heart was not displaced; the pericardium was normal. The right lung was covered with a thick false membrane, which could be readily stripped. No crepitation at the lower half of the lung was present. It had a solid consistency and sank in water. The diaphragmatic surface showed two irregular circumscribed, dark-gray patches, softer than the surrounding tissue. Gangrenous patches, varying in size from a pea to a walnut were scattered throughout the lower lobe. There was neither a gangrenous odor nor any obstruction to the vessels. About four-fifths of the lower lobe was gangrenous and when washed with water, exhibited a honey-comb appearance. The left lung was congested and covered with thin false membrane; there was no enlargement of the bronchial glands. Heart walls and valves were normal; there was found a fatty enlarged liver and marked splenic enlargement. The kidneys were almost adult size and showed changes incident to acute parenchymatous nephritis; albumin was present in the urine in the bladder. Microscopically: Large quantities of epithelium from the pelvis of the kidney and also from the kidney itself and from the bladder were present. There were likewise found epithelial, hyaline and blood casts. Tubercles could not be demonstrated.

In Perry's[48] case of gangrenous pneumonia in a man aged forty-five years, there occurred hemoptysis and pyrexia. Death was apparently produced by internal hemorrhage. Influenza probably brought on the attack of pneumonia. At the autopsy 52 ounces of clotted blood were found in the right pleural cavity, which communicated with the lung by a small opening.

Goelet's[49] case gave a history of alcoholism. A male, twenty-three years old, on the 16th day of the attack developed offensive expectoration. In a short time unmistakable symptoms of pulmonary gangrene appeared. The patient recovered.

In Squire's case, a male of thirty-four years, pleuritis occurred, but resolution failed to evince itself at the usual time. During the middle of the fourth week there was fetor of the breath; the sputa was purulent and of an emerald green hue. It exhaled a fetid odor; violent paroxysms of cough were present, and upon one occasion expectoration of one pint of this sputum occurred. Five months later the man was apparently well and was occupied at his usual vocation.

In Thorp's case,[50] a boy of fifteen years, pulmonary gangrene began upon the seventh day.

In Brookhouse's[51] case the patient enjoyed but a partial recovery. Two months later dyspnea developed, with violent paroxysms of coughing and expectoration of a dark-colored, fetid, purulent fluid. A large cavity was discovered at the base of the left lung (the upper lobe was normal). Upon aspiration a violent explosion of air occurred with the escape of three drams of fetid pus. The case ended fatally at the end of the third month. Postmortem examination showed the right lung in its entire extent adherent to the chest wall. The upper lobe of the left lung was free from adhesions. The lower lobe was so densely attached, that in efforts of removal the tearing of the dense adhesions rent the tissue asunder. A cavity of the dimensions of a cup, occupied the whole of the left base; the wall was smooth and was free from pus. Adjacent lung tissue was almost black and solid. The right lung was engorged and edematous. On incision at the base, pus could be forced out. A male patient, aged thirty-nine years, is reported by Fisher[52] as presenting the following signs: Decidedly albuminous urine was present with the usual symptoms characterizing the typical onset and early course. Upon the 14th day, the sputa had a decidedly gangrenous odor. Dulness extending to the base, with amphoric breathing at the upper and middle third was present. There was also pectoriloquy in this situation. There were marked remissions and exacerbations in the temperature, variations attendant upon copious and exhausting sweats. Upon the 23d day the temperature became normal, and convalescence began, with resulting pulmonary resonance over the entire right lung. The patient recovered.

De Jersey[53] treated a child twenty-one months old with a tuberculous family history on both sides of the family. Eight weeks antecedent to the attack the child was a sufferer with severe attacks of dyspnea, anorexia, fever and cyanosis of the lips. There was absence of expectoration. Wooden dulness over the whole left chest, but no cardiac displacement was present. The left chest was one quarter of an inch larger than the right. Exploration was performed and fetid pus evacuated to the extent of one dram. The temperature fell after the withdrawal. When the dressing was renewed, a thick brownish discharge of offensive odor was noted. Offensive diarrhea and vomiting were present. Forty-eight hours before death the breath became extremely offensive and fetid. At the autopsy the left lung was found solid, and the tubes were widely dilated and thickened, and contained a large amount of pus. Gangrenous patches were scattered over the lung, emitting a fetid odor. The pleura was everywhere adherent. Bronchitis was discoverable in the right lung. No tubercles, emboli, or thrombi were present.

Syers'[54] case was that of a lad of eleven years, who developed marked dyspnea upon the sixth day. Pain in the right axillary region became suddenly apparent; there were also present coughing, retching and vomiting, resulting in the expulsion of large quantities of extremely offensive pus. The breath gave out a fetid exhalation. A cavity was discovered at the apex of the right lower lobe. The temperature fluctuated between 101° and 102° F. with free diaphoresis at night. At the end of one month temperature became normal and recovery rapid. Microscopical examination revealed pus corpuscles and elastic fibers in the pus.

Edson[55] has reported a case of a girl aged eight years, where delayed resolution was observed. For weeks the patient had been lying upon the affected side, and exhibited the following well marked symptoms: Suppressed cough, scanty frothy mucus, and a small amount of tenacious yellow sputa. The urine was scanty and albuminous, and there was edema of the feet. Between the first and second rib and three-quarters of an inch to the right of the sternum, an abscess was discovered, about the size of a hickory nut. The walls were thick and firm, affording a synchronous expansion and contraction with the respiratory movement. Five days later a still larger abscess was observed, occupying a position one and one-half inches below the right nipple; the following day rupture occurred, resulting in the discharge of two pints of pus; this exudate spurted from the orifice when the patient, by forcible expiratory efforts, brought on a paroxysm of cough, and when the cavity was void of its contents there was noted the free passage of a current of air, which effected its way through a bronchus, and thence to the trachea. There was a complete adherence of chest wall and pleura. Pus could not escape internally. The first abscess to appear was the first to disappear, resulting in a marked improvement in the patient's condition. In one month the child was up and about and in four months complete recovery was reported.

Molson's[56] patient perished upon the eleventh day. The patient, a female of thirty-five years, began the expectoration of a very offensive purulent exudate upon the tenth day of the disease, accompanied by a drop in the temperature from 104° to 99° F. Upon postmortem the following changes were observed: Extensive pneumonia of the right lung, the lower lobe presenting at its lateral aspect the existence of a large ragged abscess cavity. Serous membrane involvement was disclosed in the recently inflamed pericardium; the right side of the dura mater showing internally the presence of a thin film of inflammatory lymph.

Elsner[57] has reported two cases. The first of these was an attack of croupous pneumonia, in a man of thirty-four years, with marked cardiac asthenia. The patient stated that he was of temperate habits. Four days following crisis, there was thought to be in the middle lobe of the right lung an accumulation of pus. This was confirmed by exploratory puncture, the abscess cavity was incised and drained and perfect recovery resulted. In the second case reported by this physician, the patient, a man of twenty-six years, gave a distressing previous history. Addicted to the continuous use of cocaine, a slave to absinthe, giving a clear history of specific disease and alcoholic excesses, though no existence of a tuberculous diathesis, the patient suffered an attack of delirium tremens upon the third day of the disease. Microscopical examination revealed pneumococci and staphylococci in the sputum upon the sixth day of the disease, with profuse perspiration and the occurrence of crisis. The delirium tremens at this time became markedly modified, the mind becoming clear a few hours later. Upon deep inspiration, intense pain was experienced at the infra-scapular and infra-axillary regions of the right side. Elevation of temperature to 104° F. with a well defined chill occurred subsequently, with the re-occurrence of symptoms indicative of delirium tremens, in conjunction with a short and unproductive cough. Involvement of the left apex intensified the symptom-complex upon the tenth day; leucocytosis which had disappeared upon crisis again evinced itself, and the presence of bloody sputum was observed. Exploratory puncture revealed the existence of pus in the right lung, but a negative result followed incision of the pleura; a few pleural adhesions could be demonstrated. At the most dependent part of the base an abscess could be detected. A half-pint of dirty, fetid pus was evacuated, and this was followed by the institution of drainage, which was continued for about two months. Recovery was reported. This same physician in a series of 150 cases of croupous pneumonia, finds the occurrence of abscess formations in but three cases, and Sello[58] who has collected 750 cases, reports that in them he has found 11 instances of abscess, thus giving a percentage of 1.5.

(To be Continued)

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

Myomata and Pregnancy.—The decision of the operability of fibromyomata of the uterus is difficult even in the presence of modern advanced technic, but when pregnancy occurs to complicate the proposition the seriousness of the clinical question is enhanced. Submucous myomata by altering the endometrium usually prevent conception; subserous forms have no effect on impregnation but may interfere with later pregnancy and delivery, while interstitial masses especially about the lower segment of the corpus or in the cervix commonly cause very great obstruction in the parturient passage. Dr. URICHIN of Charkow (C'blatt f. Gynäk., 1902, No. 25) briefly reports such a case: The thirty-five-year-old woman began menstruation at sixteen years of age and continued it normally; married at twenty-six, when painful and profuse menses began; in May, 1901, bleeding began and persisted eight weeks; last period Sept. 10, 1901. Pregnancy present with vesical symptoms. Palpation disclosed a goose-egg-sized subserous tumor near the fundus on the right, and another hard mass on the posterior aspect of the organ; and the fetal head in the anterior vaginal fornix. Auscultation showed the uterine souffle and fetal heart sounds. The urine contained albumin, casts and renal elements. Diagnosis: fibromyoma uteri gravidi cum nephritis. Without this complication the pregnancy would have been allowed to terminate and a Cesarian section undertaken. Interference was however undertaken at once. The uterus was amputated just distal to the internal os so as to remove another tumor in it. The recovery was complete. One mass was sarcomatous.

Folliculoma Ovarii.—This term was first suggested for all those tumors of the ovary where one finds certain cells resembling egg cells. W. E. FOTHERGILL (Jour. of Obstet. and Gynæc. of the Brit. Empire, July, 1902) reports a few specimens which have been described which resemble this sort of tumor, in that they are ovarian carcinoma or malignant fibroadenomata whose epithelial elements are derived from germinal epithelium. The writer's case, at first sight, appeared to be a superficial fibroma. On section, however, small cyst-like spaces were seen within a white fibrous stroma. Microscopic examination showed the stroma to consist of firm fibrous tissue not very rich in cells, in which there were embedded numerous masses of epithelial cells varying greatly in size. Within some of these alveoli, and generally centrally placed, there were cavities varying in size, partly filled with fibrinous masses, but also containing one or more vesicular egg-like cells. Round the margin of these little cavities, the epithelial cells were radially arranged, and approached in nature to cylindrical epithelium. As to the origin of these cells, two views appear to be tenable: They may be true egg cells—rests, as suggested by Schroeder; or else may be ordinary cells of the membrana granulosa which have enlarged and grown into semblance of egg cells under the same stimulus which has caused the pathologic overgrowth of the rudimentary follicles. It would appear from the fact that these tumors are usually found after menopause, that the structures derived from the germinal epithelium still retain the tendency and power to form rudimentary follicles and cells which, seen apart from their surroundings, would certainly pass for true ova.

Cesarian Section—Fritsch's Fundal Incision.—In connection with the operation of Cesarian section, there are at the present moment, three important questions sub judice. These are: (1) The conservative section versus Porro's, or intraperitoneal hysterectomy; (2) the sterilization of the patient if the conservative operation is chosen; and (3) the direction of the uterine incision. So says J. M. MUNRO KERR (Jour. of Obstet. and Gynæc. for the Brit. Empire, July, 1902). In 1897 Fritsch first recommended the transverse fundal incision, because of the ease with which the child can be extracted from the gravid uterus. The advantages claimed by Fritsch and substantiated by the writer are: (a) The abdomen is opened into higher up, and so there is less risk of subsequent hernia; (b) by pulling the fundus well forward, the escape of blood and liquor amnii into the abdominal cavity can be better prevented; (c) the child can be more easily extracted; (d) the placenta is less frequently cut down upon; (e) there is less bleeding; (f) there is greater diminution of the wound, and less stitching is required. The objections urged against the operation are: (1) The incision makes adhesions to the bowel more liable, which may interfere with the involution of the uterus, and that discomfort from dragging on the abdominal wall will follow; (2) the uterus may become fixed to the abdominal wall three to five inches above the symphysis; (3) in case of any infection of the uterus general peritonitis is more liable to follow. This is not so great with the longitudinal incision, for it becomes shut off from the peritoneum by adhesion with the anterior abdominal wall. The danger of rupture of the uterus in a subsequent pregnancy is still a matter on which one can not speak with any assurance, and certainly one can not yet compare the danger of rupture after a longitudinal with the danger after a transverse fundal incision.

Birth of a Monster.—The delivery of a well-developed eight-months fetus presenting two heads and three arms is reported by W. TIEBER in Bohemia (Prager med. Woch., July 10, 1902). This fetus was the result of a first pregnancy in a woman of thirty-six, and delivery was comparatively easy. There was no abnormal history. The fetus was a male, weighed 2010 grams (about 5½ lbs.), and was 39 c.m. long. The two normal heads were mounted on separate necks. The chest was broad, abdomen and pelvis narrow. A third extremity sprang from the junction of the two necks, containing a rudimentary scapula and humerus. Two distinct vertebral columns were present, separate in the thorax but united in the lumbar and sacral regions by the transverse processes. The thorax contained two hearts enclosed in a common pericardium, and four lungs each in a separate pleural sac. Two stomachs and duodena were also present and the latter united to form a common small intestine. A large divided liver presented two gall-bladders. There were two spleens and a double pancreas, but the remaining organs were of normal numbers.

Thyroid Extract in Eclampsia.—Many of the symptoms which patients develop under thyroid treatment are probably due to profound circulatory changes produced by the drug, says H. OLIPHANT NICHOLSON (Jour. Obstet. and Gynæc. for the Brit. Empire, July, 1902). It is a well established fact that the thyroid gland is enlarged in normal pregnancy. In eclamptics, the normal enlargement of the gland is said to be absent. It is well known that under the action of iodothyrin the metabolic processes of the body are greatly stimulated and there is a striking increase of the secretion of urea. In eclampsia and in all conditions of hypothyroidism, the quantity of urea is greatly diminished. The symptoms of a typical attack of puerperal eclampsia closely resemble those of complete experimental athyroidea. When a pregnant woman, who exhibits eclamptic symptoms, is put to bed, and kept on milk diet, the demands made on her thyroid secretion are greatly lessened, and the process of nitrogenous metabolism is again efficiently carried out. The thyroid gland may under normal conditions participate in controling renal function by: (1) The iodothyrin may exert some specific action upon the kidney; (2) urea—the final product of nitrogenous metabolism when efficiently carried out in the presence of an adequate supply of iodothyrin acts as a powerful diuretic; and (3) the well known changes produced upon the circulation (vasodilation) by iodothyrin, tend to promote and maintain renal activity. It is thus evident that the real significance of the pre-eclamptic is the break-down of the defensive mechanism, the result of some inadequacy of the thyroid and parathyroid glands, whereby the process of nitrogenous metabolism, instead of resulting in the formation of urea, ceases with the production of intermediate substances, which, when absorbed, excite the symptoms of toxemia. A large dose of morphia is a valuable adjunct in thyroid treatment, because it gives the thyroid gland time to recover itself by inhibiting metabolism and removing the arterial spasm.

Retroflexion of Uterus.—It is the firm conviction of E. WORMSER (Münch. med. Woch., July 1-8, 1902) that entirely too many women are being operated for malposition, especially retroflexion of the womb. The fact that all the symptoms often disappear as if by magic after the operation, though the patient was but little, or not at all helped by it, as far as the anatomical condition is concerned, shows the true nervous character of the trouble. Uncomplicated, mobile retroflexions in otherwise healthy women, give no symptoms and do not require any treatment except sometimes during pregnancy. The symptoms which patients with mobile retroflexions complain of are due to complications which often cannot be readily detected; or they are the expression of a disturbance of the nervous system. In either case, the retroflexion as such is innocent. Only if active treatment of the complications, or of the nervous condition, is unavailing, should a correction of position be attempted.

Sentence upon a Physician for Malpractice.—The report of medico-legally important cases is always significant. Hence note is made by Dr. KEFERSTEIN, Imperial Court Physician at Magdeburg (C'blatt f. Gynäk., 1902, No. 23) of the sentence to five months' servitude pronounced upon a physician for applying an obturator to prevent conception in from 700 to 800 women, which in five caused bodily damage. It consisted of a disc with two arms attached which separated within the womb to retain the device *in situ*. Its use lowered the birth-rate to a very large degree, because although semen could pass upward through spaces permitting menstrual outflow, the presence of the arms within the cavity prevented arrest and development of the fertilized ovum. In one of the women an arm of this villainous foreign body broke off and in others various injuries to the womb occurred. Since the doctor represented to his patients that his obturator was "harmless" as well as "effectual" he was adjudged guilty of malpractice and accordingly punished.

Resuscitation by Infusion through the Umbilical Vein.—In 1882 J. Cohnheim made a comparison in his dissertation on general pathology between the plethora which is artificially produced by a transfusion of blood and that which follows physiologically immediately after birth by the emptying of the placenta into the umbilical vein by intra-uterine pressure, to which distinct attention was first callled by A. SCHÜCKING (C'blatt f. Gynäk., 1902, No. 23). The latter author has been induced by a study of this phenomenon minutely by means of apparatus for the observation of changes in weight, blood-composition and blood-pressure in the newly-born to attempt an infusion of saline solution into the umbilical vein as a means of resuscitation when other more usual means threaten failure. His first result he reports in brief as follows: The child weighed 3,200 grams and was born in an exhausted condition after a very prolonged labor, which began with the child in the transverse position. All the known means of resuscitation were in vain and the heart sounds were scarcely distinguishable. He immediately cut the cord transversely, and having the necessary apparatus at hand began an infusion of saline solution into the umbilical vein. After perhaps 30.00 grams had been administered the child took a feeble respiration and the heart-impulse was more easily perceptible. Then 20.00 grams additional were given and the efforts of the baby were reinforced by Sylvester's artificial respiration. This method of treatment succeeded admirably and the child fully revived and lived. The apparatus he used was the Mariot bottle, tube and cannula. The solution contained 0.025-0.035 saccharate of sodium and 0.7 chloride of sodium. His theory as to the value of the former constituent is that the sugar takes up the carbonic-acid gas, making sugar and a carbonate of soda. The quantity of the saccharate of soda can be raised to 0.25-0.15 grams per cent. The admirable manner in which this procedure results in the asphyxia of the newly-born makes the author believe that it will be of service in all other forms of carbonic-acid gas poisoning, for example, strangulation, drowning, illuminating gas asphyxia, etc.

Baths during the Puerperium.—Baths are usually regarded in the present obstetrical teaching as contraindicated during the puerperium, except for cases of septicemia in which cold hydrotherapy and cases of postpartum hemorrhage in which hot hydrotherapy fulfil respectively the usual indications for hyperthermia and shock. Excepting these unusual conditions most accoucheurs do not allow baths until after the puerperium is over and the woman again on her feet. G. Martin (La sem. méd., 1902, No. 23), however, after a careful study of the subject, offers the following indications of the bath for the puerperal woman. By their sedative action, tepid baths at from 32 to 35° C. are of value to quiet the nervous system whenever it has been affected; for example, as is shown by cramps, urinary retention, mental excitement and the like. By their diaphoretic and diuretic influence they will be found to meet the usual calls of both these functions. Distended and painful breasts will go down at once or after a few hours through the action of warm baths lasting from twenty to twenty-five minutes. Errors in the involution of the uterus, lymphangitis of the breasts, galactophoritis and other inflammatory conditions are all benefited. There are, of course, absolute contraindications of body-baths during the puerperium which are summed up in the dangers of infection from any possible source; of such lesions of the external genitals, ulcers of the leg, abscesses, ulcerating gumma and the like are familiar and emphatic examples.

Abdominal Hysterocolpectomy.—A new operation for removal of cancer of the cervix uteri is proposed by J. H. Gleason (Phil. Med. Jour., June 21, 1902). The requirements for favorable results must be an early diagnosis while the disease remains localized and removal of the organs and tissues wide of the infected area. The operation is done in two sittings, the preliminary one consisting of the removal by curette of the growth from the cervix and after dilatation of the latter, the removal also of the endometrium. The diseased vaginal areas are then excised and the cut edges united with silkwormgut sutures. The patient is then given three bichloride douches daily and the main operation may be done twelve days later with little danger of septic infection or the implantation of "cancer" cells. At this time the vagina is again carefully cleansed and the surfaces swabbed with pure carbolic acid followed by alcohol. A circular incision is then made at least 1½ inches below the limit of the disease and a cuff of vaginal tissue dissected back. The abdomen is opened by a median incision and after ligation of the proper vessels an extensive dissection is made including the uterus, adnexa, pelvic glands, pelvic cellular tissue and the vault of the vagina. A gauze drain is passed out through the vagina and the bed of the genital tract obliterated by a series of buried purse-string sutures which pass from the remains of the vagina below to the peritoneum above. The pelvic cavity is then closed by uniting the peritoneal reflections from the bladder and rectum and the abdominal incision is sutured. An extensive removal of tissue is thus provided for and by the obliteration of the tract of the enucleation, the maintenance of a large granulating surface is avoided.

MEDICINE.

Abscess-Perforation of the Esophagus.—Perforation of the esophagus from traumatism, or from ulceration of malignant growth, is of extreme rarity; rupture by violent vomiting is more common. The following case was proved by autopsy to have been due to an abscess of the posterior mediastinum which ulcerated through the wall of the gullet. The girl was under the care of Mr. N. Tirard, was nineteen years old, admitted Nov. 12, 1901, for chronic cough and fetid purulent expectoration. One sister died of tuberculosis. The patient had had repeated attacks of quinsy for which her tonsils had been removed, and had rheumatism once in childhood. The present sickness began about Oct. 1 with headache and nausea but no vomiting. Cough, fetid expectoration, and vomiting began a few days later accompanied by a "nasty taste in the mouth." After about three weeks the fetid expectoration became a feature and she was treated for abscess of the lung. Physical examination showed hardly any signs whatever. A few râles were present in the right chest in front. The general condition of the patient continued to grow worse slowly. Repeated examinations failed to find any definite signs and several exploratory aspirations did not reach any localized empyema or abscess either in front or behind. With the hope of finding one, an exploratory thoracotomy was done which likewise failed to reach any suppurating focus. Death supervened a few days later after a slow sinking of the patient's strength. At the autopsy the following condition was discovered: In the anterior wall of the esophagus, just at the bifurcation of the trachea, was an opening the size of a number 8 catheter, which entered an abscess cavity the size of a hen's egg which was filled with a mass of necrotic tissue, cone-shaped, composed in part of old fibrin and gangrenous material; its fluid contents was foul pus and the walls also gangrenous. The right bronchus had a communication with this abscess about one inch distal to the bifurcation of the trachea, whose gangrenous edges tore on examination and thus prevented determination of the size. This bronchus was inflamed throughout and the right lung in a state of recent insufflation pneumonia and in spots ready to break down and suppurate. The left bronchus was also inflamed but the left lung had no signs of pneumonia. The pleura over the base of the lung was adherent but nowhere else at all affected. Here, therefore, was a patient with a fatal condition which gave no physical signs of its presence until at a very late period. As such the case is worthy of note (Lancet, July 12, 1902).

Spotted Fever.—This disease has been recognized in certain mountainous districts of Montana and Idaho for twenty years, and though its history and clinical symptoms have been described, the first report on its pathology and etiology has lately been made by Wilson and Chowning (Journ. Am. Med. Assoc., July 19, 1902). The disease is characterized by an acute onset with chills and fever, an eruption extending over the entire body, beginning as a macular rash which later becomes of a spotted or marbled character and subsides in several weeks, followed by a general desquamation. There is a moderate anemia, tender and enlarged spleen. Constipation is usually present. The urine is reduced in amount and contains a small percentage of albumin. As complications, gangrene, hypostatic pneumonia and articular rheumatism often occur. The prognosis is bad, especially if the eruption is marked. A series of six autopsies were made. The only gross lesions found were a much enlarged spleen with distended and thinned capsule, subcapsular hemorrhages in the kidneys, slightly enlarged and pale liver, and some congestion of the meninges and viscera. Sections show a capillary congestion throughout, with many of the red cells containing parasites. There were found fatty degeneration of the liver and acute parenchymatous nephritis. Blood preparations during life showed a marked poikilocytosis and anemia.

In studying the etiology of the disease the following facts have appeared to be of most significance: (1) the definitely limited locality in which the disease occurred; (2) the season (March to July); (3) the symptoms and lesions indicating a specific infection; (4) no evidence of transmission directly from one patient to another; (5) no signs pointing to the digestive, respiratory, or genito-urinary tracts as avenues of infection; (6) in all cases examined, small wounds of the skin were noticed, said to have been made by the bites of ticks. Bacteriological examinations showed no bacteria of any etiologic significance. Examination of the blood, both before and after death, showed the presence of an ameba-like organism in the red cells which varied greatly in form, size and staining reaction at various stages of its development. In marked contrast to the small number of infected cells in the circulating blood, is the great number of infected cells in the congested capillaries in the tissues removed at autopsy, where from 1 to 5 per cent. of the red-cells contained each a large parasite. This is especially marked in the lung, spleen, liver and kidney. The organism resembles in its smaller form that of Texas fever, yet differs in being as a rule larger, and exhibiting active ameboid movements. The absence of pigment would apparently separate it from the malarial group and place it with that of Texas fever. Inoculation experiments made with rabbits showed the presence of the organism in the blood within twenty-four hours, and on successive days for two weeks. The authors, from their observations, advance the hypothesis that the disease is conveyed to man by the tick. The facts which support this view are, (1) that the disease has been known to prevail only during the period of the active life of this insect; (2) the occurrence of spotted fever in isolated cases in sharply limited regions would indicate that the carrier traveled slowly and not widely; (3) all hematozoa of warm-blooded animals pass at least one phase of their development within the body of some host, usually an insect or arachnid; (4) the organism of Texas fever in cattle is conveyed through the bite of ticks, and the germ of spotted fever seems closely related; (5) all the patients observed were known to have been bitten by ticks. The authors believe that the intermediate host is probably one of the lower mammals, such as the gopher.

On the Relation between Pupillary Affections, Syphilis, Tabes and General Paralysis.—Of 1100 cases studied by Henri Dufour (Le Progrès Médical, June 21, 1902), eighty men and nineteen women were avowedly syphilitic. Inequality of the pupil was observed in many cases which were free from syphilis or nervous disease. Irregularity of the pupil points strongly to syphilis or one of the so-called parasyphilitic infections. The Argyll-Robertson pupil is found in syphilitics, tabetics, and those with general paralysis. Of the eighty syphilitic men, about 25 per cent. had either a nervous or a pupillary affection. These observations confirm those of Babinski on the relation of the Argyll-Robertson pupil to syphilis, and those of Joffroy and Schrameck on pupil deformities in tabes, general paralysis and syphilis. Vidal believes that the Argyll-Robertson pupil always indicates a syphilitic nervous lesion.

Treatment of Gastric Ulcer.—In a series of interesting articles, the well-known stomach specialist, W. Fleiner (Münch. med. Woch., July 3, 10 and 17, 1902) gives his views on the proper treatment of gastric ulcer. The first and foremost principle is absolute rest in bed which should be kept up at least four weeks. If the patients are still in a fairly good condition, their stomach is kept empty since the contraction thereby induced renders the ulcer smaller and more capable of spontaneous healing. It is necessary, however, to add some fluid to the system and for this purpose eight to ten ounces of lukewarm water, or in run-down subjects nutritive enemata, with or without stimulants, are administered per rectum. There can be no objection, however, to the swallowing of small pieces of ice or of cold water, as the contraction of the stomach may be increased. An ice-bag may be placed over the epigastrium when the slightest distention is noticed. The longer this treatment can be carried out, the better, but a strict milk diet, increased up to 250 c.c. every two to two and a half hours should be started, if possible before the general condition suffers. After two to three weeks the nutritive value of each ration may be increased by boiling the milk with cereals, such as arrowroot, rice or maizena, or by adding cream. A number of cases will be encountered in practice where milk does not well agree and here barley gruel, cereal soups or meat jellies may take its place. Finely cut chicken is added to the diet after the fourth week, and if this is well taken, other white meat, mashed potatoes, boiled rice and eggs are permitted. Not until the elapse of the sixth week may the patients partake of red meats, young vegetables and boiled fruit. It is even now desirable that a certain amount of rest be taken directly after the meals. Vichy forms an excellent drink during this period. Before discharge the patients must be carefully instructed to avoid all irritating food including meat-extracts, preparations containing albumose and peptone, and all alcoholics and to carefully masticate their food. While long journeys after a cure of this kind are not indicated, convalescence will be more rapidly established by a stay in a suitable country place. The greatest advance in the therapy of ulcer is undoubtedly the use of gastric lavage to remove all stagnating and irritating food. This is contra-indicated only where there is a tendency to hemorrhage or when a profuse bleeding has occurred within two or three months; and it is supplemented by pouring ten to twenty grams of bismuth subnitrate suspended in 150 to 200 c.c. of warm water into the stomach. The bismuth will at once coat the ulcerated area, will stop the pain and favor healing by its antiseptic and protective action. After the lavage, which is best performed early in the morning, the patient must remain for one-half an hour in that position which best favors precipitation on the raw surface, and then breakfast is given. Where lavage is not necessary, the patient may drink the bismuth suspension. There are three objections to bismuth, viz., constipation, the formation of concretions and intoxication. The first can easily be combated by enemata, the other occur too rarely to be considered. The use of the subcarbonate of bismuth or bismutose offers no advantages. Not less important than the treatment of ulcer is that of its complications and it is here that surgical interference is most often required. Where there is an hour-glass stomach or stenosed pylorus, only an operation will relieve, and the same may be said where the ulcer is situated at or near the pylorus and when the frequent pyloric spasms directly oppose all natural healing. As is often the case here, the patients vomit large amounts of fluid, and when tetany sets in, no more time should be wasted in placing the patient on the table though the dangerous inspissation of the blood may be overcome by intravenous infusion of saline solution. Turning now to the subject of hemorrhage, a profuse bleeding demands rest, abstinence from all food, ice-bag on abdomen and small pieces of ice to suck, ergotine hypodermatically, ligation of the extremities and perhaps camphor. After one to two hours, the ligatures are slowly removed and the circulation is improved by means of clysmata of 200 to 300 c.c. lukewarm saline solution, or beef-broth, to which ten to twenty grams of white gelatine may be added with advantage. Of course, the ideal procedure would be laparotomy with ligation of the bleeding vessel but gastric surgery has not yet advanced far enough to allow this to be done with safety in all cases. Perforation, however, belongs more strictly to the surgeon's domain, though the author has seen cases recover under medical care. The operations performed on the stomach for ulcer are three-fold, viz., resection and excision of the ulcer, pyloroplasty and gastro-enterostomy. To judge from the experience of Czerny's clinic, the last-mentioned is the least dangerous and most often successful of the three, especially since the Murphy button has been used more freely. It seems that by this operation, a state of contraction is induced in the stomach, and the free passage of food into the intestines prevents a recurrence of the trouble.

The Urine in Sydenham's Chorea.—The urine of choreic patients, according to DE MARCHIS (La Riforma Medica, July 5, 1902), presents the following characteristics: Diminution of the daily quantity; specific gravity relatively high; total acidity increased; diminution during the disease of the quantity of nitrogen which is not eliminated as urea; increased elimination of uric acid; decrease in elimination of chlorides; increase of phosphates; total quantity of sulphuric acid and allied substances, unchanged.

Diphtheria Complicating Scarlet Fever.—Arising during the course of scarlet fever, diphtheria is seen not only during the convalescence from the former disease, but also at its height and its very beginning. According to J. A. SCHABAD (Archiv f. Kinderheil., July, 1902), in the early stages of scarlet fever the diagnosis of diphtheria depends on the agreement of the clinical symptoms with the results of the bacteriological examination. While the diphtheria bacilli found in the throats of patients during the convalescence from and during the height of scarlatina, possess the normal virulence when injected into guinea-pigs, on the other hand cultures of the Klebs-Löffler bacilli taken from the throats of incipient cases of scarlet fever, although morphologically characteristic, have little or no virulence with respect to guinea-pigs. This absence of virulence, however, does not exclude the diphtheria bacillus from taking its share in the production of the pathological processes seen in the combination of these two diseases. At times diphtheria bacilli are found in the throats of incipient cases of scarlatina, when no clinical symptoms of diphtheria are present. In view of the milder course and more favorable outcome of these cases, it appears that in them the diphtheria bacilli play the rôle of saprophytes, taking no part in the production of the pathological process. In hospitals for contagious diseases all cases of scarlet fever in whose throats the diphtheria bacilli are found, should be isolated from the rest. It should be understood that cultures should be taken in all cases of scarlatina on admission to the wards.

Widal's Reaction in Weil's Disease.—Two very clear cases of Weil's disease came under the care of T. ECKARDT (Münch. med. Woch., July 8, 1902), who, strangely enough, found that in both the Widal reaction was positive even in as strong a dilution as 1-1000. Commenting upon this, he points out how often the reaction is positive in jaundice from any cause; it does not seem to be the bile alone but some combination of the bile with the blood which is able to produce agglutination. Yet this does not explain these two cases, for the reaction was much too strong to be referred to the icterus alone and was still present when this had already disappeared in almost the same strength. Though the presence of jaundice and nephritis, such as occurs invariably in Weil's disease, strongly militates against the diagnosis typhoid, yet the author is inclined to regard the disease merely as a peculiar, abortive type. There are a number of other reasons which also speak for this, such as the synchronous occurrence of epidemics, and the frequent presence of a characteristic temperature curve, epistaxis, general malaise, recurrence and sometimes roseola.

Malaria and Appendicitis.—The addition of a sharp attack of malaria to some slight abdominal condition is apt to arouse considerable anxiety in regard to the possibility of abscess condition and has sometimes led surgeons to operate unnecessarily. H. J. WOLF (Med. Rec., July 12, 1902), besides mentioning those attacks of malaria with abdominal symptoms which closely simulate an acute appendicular condition but which can usually be diagnosed by the further course of the disease and by the blood examination, also reports cases in which the two conditions occurred simultaneously. A mild attack of appendicitis may be accompanied by a malarial chill and the true status becomes difficult to appreciate. In one case the malarial condition was diagnosed by the blood examination, but the mild symptoms of appendicitis persisted till that organ was later removed and found to be the seat of considerable inflammation. Most careful examinations are necessary in these cases, for it must not be forgotten that the discovery of plasmodia in the blood does not exclude the possibility of a coexisting appendicitis.

Hodgkin's Disease and Lymphatic Leucemia.—The pathology of these diseases is still very obscure and so far as etiology is concerned very few important points have been added to the description as given by Hodgkin himself. M. EINHORN (Med. Rec., July 12, 1902) reports several cases and lays stress upon the resemblance which these diseases bear to one another. So far as symptoms are concerned the differential diagnosis cannot be made for glandular swellings characterize both and the anemia may be equally marked. The only important difference lies in the blood constituents and upon this the diagnosis rests. In lymphatic leucemia there is a marked increase in the lymphocytes, while in Hodgkin's disease their relative and absolute number remains about normal.

Dietetic Treatment of Biliary Fistula.—Operations upon the bile ducts and bladder have the great danger of secondary chronic biliary fistula which may waste the patient's strength by loss in assimilating power and, therefore, require a second intervention for their cure. JABOULAY of Lyons (La Sem. Méd., 1902, No. 27) reports a most instructive case in which purely dietetic measures sufficed to give nature the chance of healing the sinus by checking the flow of bile outward. The woman had suffered for some time from this flow of bile which had the strange characteristic of appearing only at night, while in the day during presumably digestive activity the secretion was determined in its flow toward the intestine, so that during her hours of work only mucus escaped. The patient's last meal of the day was at half after four in the afternoon, so that at ten o'clock at night when she retired digestion of the food was over and the bile began to flow outward again. Jaboulay determined to try the effect of a late meal and gave her one at bed-time. He was surprised to find that its stimulation of digestion stopped the leakage of the bile till about four o'clock each morning. Its quantity was so scanty that healing occurred. Had the reverse obtained he would have given an early morning meal, too. From this observation Jaboulay states that these patients should receive food every four or five hours in order to keep the bile from tendency to collect in the bladder and then leak. L. Tixier and

V. Chappet both of Lyons offer contributive and corroborative evidence in reporting to Jaboulay another case treated in the same way successfully.

A New Method of Vaccination.—At the present time vaccination, upon the adult especially, does not present a very high percentage of successes. The failures are very numerous in the experience of every practitioner, and it is usual to ascribe them to natural individual resistance, to the immunity present from a preceding vaccination no matter how remote, to atenuity of the virus from age, to ineffectivity of a particular point or tube because it did not carry sufficient virus. Failures in vaccinating children were excused by the above reasoning, and in addition a purely hypothetical cause was adduced by which immunity was conferred by the parent upon the offspring. Unfortunately, for the truth of such a contention, cases have become known in which the inoculation succeeded in mother and father, or in either, although it failed in the child. The virus was in most of such experiences blamed but it, too, was not at fault because it acted well in other families. The method of operating was next charged with the cause and scarification and scratching, alone or combined, with the needle or the scalpel were adopted by various operators. The difficulties in actual practice which these failures to inoculate may cause, are illustrated by the observations of M. BOIGEY (La Sem. Méd., 1902, No. 27) during the recent epidemic in Lyons. Patients sickened more or less severely, some fatally of smallpox who had been pronounced immune because vaccination practised upon them shortly before the attack had utterly failed. Instances of this same thing have been reported from London during the recent outbreak in that city. Boigey seeks to explain the failures of vaccination in the rational manner of assuming that when the virus does not enter the lymphatic channels failure results. He concluded from this premise that if a means can be devised for insuring the entrance of the virus into the lymph spaces the vaccination will almost always succeed. The indications are plainly that the breaks in the epidermis should be multiple and very close together. The old-fashioned scarifier was, therefore, made on the correct principle but did not after all do the work successfully every time. Boigey has attempted hypodermatic injection of the virus only once, abandoned it solely because too dangerous, through liability to abscess-formation, to systemic poisoning, to contamination of the virus by unnecessary handling, and through other obvious technical difficulties. He thought of using the vesicle of a burn as the avenue for securing entrance of the virus. He consequently devised a vaccinating hammer (*"marteau à vacciner"*), or as it might be called a vaccinating cautery. Its face is very gently convex and its handle is 18 c.m. long. The essence of the process is that the hammer shall be heated in boiling water and then lightly applied to the site of vaccination. The burn is of the second degree and in a very few minutes a blister forms over it. This is punctured and the virus is put beneath the epidermis into the serum, which is an excellent culture medium for the vaccine virus. He has had only entirely satisfactory results from this procedure. In public practice several hammers are at hand, applied in turn to the arms, and the patients withdraw till the blister appears when in turn the virus is added. It takes no more time, causes no more pain and is more certain than the present methods.

SURGERY.

A New Protective Dressing.—The original protective silk devised and recommended by Lister has the disadvantages that the carbolic acid contained in it as a means of sterilization may irritate the wound and skin and the nature of the fabric is such that matting and adhesion to the suture-line are not always avoidable. For these reasons this silk is now very rarely used. It has been followed by the various types of silk-taffeta, rubber-tissue, silk and cotton soaked in vaseline and fats, with the object of preventing adhesion to the wound, flaps or suture-ends and hence of avoiding tearing when the dressings are changed. All these have their individual merits and in common the great demerit that their form, composition and consistence do not permit sterilization by boiling more than once at the most, and hence necessitate emersion in various antiseptic fluids which may thus be transferred to and injure the field of operation. Their features do not moreover permit full adaptation and uniform apposition to the wound and hence often render protection imperfect. CARL SPRINGER (C. blatt f. Chir., 1902, No. 24) seeks to meet all the indications of protective dressing by making a perforated, soft pellicle of paraffin. His ingenious and simple article is made in the following manner: Paraffin of a melting-point of 45-47° C. is selected and 1 to 2 cubic cm. taken for every 50 square cmm. of the water-bath into which in a shallow dish it is thrown, boiled until melted and then continuously boiled for ten minutes for sterilization. The water-bath is then put into another flat pan of cold water to cool while the paraffin forms a thin film upon its surface and remains soft and plastic when the body-heat is reached, yet tenacious enough to permit of handling, cutting, perforating with a hot needle, molding and adapting to the body-surface. When so treated it remains soft, does not irritate the skin or wound or adhere to them or the other dressing; it is chemically inert, can be made-over by the same process ad lib., is very cheap and durable, fulfils all the indications but possesses none of the disadvantages of its predecessors in the domain of protective dressings. Finally, its translucency permits phototherapy to be used at the late stages of wound treatment when ordinary dressings prevent it. The quantity of paraffin used by Springer makes a film of suitable thickness for these purposes. The one caution of the process is not to shake the pans during the cooling-process, so that the layer will be of uniform thickness.

Appendicitis.—This disease is of such frequent occurrence and of such vital significance that too many discussions of it can not be held nor too numerous opinions offered in order to make up the consensus of ripe medical and surgical judgment as to its protean features. Sir FREDERICK TREVES (Lancet, June 28, 1902) delivered the Cavendish Lecture recently and made inflammation of the vermiform appendix his subject. The most practically important and the least easily decided point is that of the most fitting time for operation. Upon this question he offered the following data, summing it up with the interrogatory: "What is the probability of relapse?" In the earlier days of the disease relapses were according to available statistics comparatively rare, namely 20 to 30 per cent., but at the present time relapses are so very frequent that the rule may be laid down that the vast majority of cases are subject to them. Therefore, it is allowable and advisable to-day to inform any patient that the figures are against him and that after a first frank attack an operation has but trifling dangers, and should be undertaken. He, however, formulates this remarkable dictum with which very few American surgeons will agree either as to the pathological fact stated or as to the therapeutical wisdom of the treatment outlined or as to the prognosis claimed: "If there has been an abscess in the first attack, then I think an operation may be put out of court altogether, because that abscess will in certainly 95 per cent. of the cases obliterate the organ and render it harmless." He makes no mention of the features of the other 5 per cent., granting the correctness of his figures. Concerning the rare cases which under modern means of diagnosis do not relapse, he offers the following conclusions: As a rule the original attack is in the presence of incidental or habitual errors of diet. Of the incidental errors no better example can be cited than that of children who after having overloaded the gastro-intestinal system with indigestibles suffer from a more or less impacted cecum and a secondary appendicitis. Appropriate relief at the moment and prophylaxis in the future of the cause, commonly avoids all later onsets. The best example of appendicitis through habitual abuse of dietetic hygiene is presented by the overworked physician or the unduly zealous traveling salesman, who may permit themselves to take food at any and all times and under unusual conditions of haste, worry and fatigue and too frequently of improperly prepared or selected matter. If the vicious habits of such patients can be overcome, as a rule no relapses will occur.

A New Hemorrhoid Operation.—Probably on account of the variations in the pathogenesis of hemorrhoids, their treatment especially by operation is very diverse and every few months some surgeon proposes another more or less unique method of interfering with these annoying tumors. J. Potarca of Crajova (Rev. de Chir., 1902, No. 5) describes a method of his own, of which the following are the essentials: The only special instrument is a cork plug 8 to 9 cm. long, 3 to 3.5 cm. in diameter, pierced by a heavy-wire loop as a handle. The margins of this plug are rounded off and its surface bulges a little at the center. Under the usual aseptic and antiseptic precautions the plug is inserted into the rectum under deep anesthesia and after the anus has been dilated with the bivalve. After the latter has been removed the bowel will shut down upon the cork and after a little manipulation the pile-bearing zone can be fully and evenly everted upon the cork. Then with pins driven 1 cm. apart through the tissue and just distal to the muco-cutaneous juncture the part to be removed is secured against slipping. A sharp knife now encircles the row of pins in such a manner as to cut them and the pile-bearing zone free. The cork plug is now withdrawn a little more, and after hemostasis, the cut edge of the mucosa and the muco-cutaneous line are sutured. Cosmetically and functionally the results are very acceptable. The operation can be carried out very quickly.

Anæsthesin in the Treatment of Wounds.—The recent discoveries of v. Noorden as to the effect of anæsthesin after internal administration, led Dr. Lengemann (C'blatt f. Chir., 1902, No. 22) to investigate its local action. He first had the substance experimented with pharmacologically by Biberfeld and established the facts that it causes good local anesthesia without any irritation, and then in the clinic of von Mikulicz proceeded to apply it to wounds. His reports concern solely granulation surfaces of two classes, those which were painful because touching with nitrate of silver was necessary and those which in their nature were painful, like extensive burns, independently of treatment. He found that if the powder be sprinkled upon wounds of the former class and allowed to remain for some time practically all the terrors of the silver-nitrate stick were overcome. In only one patient did this result fail, almost undoubtedly because the interval between the dusting of the anæsthesin and the use of the caustic was too brief. The pain of extensive burns was not always overcome totally but invariably partially, so that the usual dressing of 1 per cent. nitrate of silver solution could be applied with little inconvenience to the patient. The other advantageous features reported are absence of any ill effect upon the progress of the granulations, of any irritation of the surrounding normal skin and of any signs of absorption and poisoning. Its non-toxic local effects are in accord with the harmlessness of the substance in suitable dose as emphasized by v. Noorden.

The Pathogenesis of Secondary Hemorrhage.—The severe and often very dangerous bleedings which formerly appeared late in a wound, sometimes even after three weeks, and, therefore, kept nearly every surgeon in an attitude of uncomfortable anxiety, are happily to-day among the greatest of rarities and surgical curiosities. It is a singular fact, however, that literature is comparatively barren of records of researches in this field, especially upon fresh specimens. A. Frommer of Krakau (Archiv f. Klin. Chir., B. 67, H. 3) has consequently availed himself of specimens obtained at the time of the second operation undertaken to finally check the secondary hemorrhage in six cases of inflammatory processes. His microscopical findings are briefly the following: The connective-tissue zones in one class of specimen are thickly infiltrated with small round cells, which may be easily differentiated not only in the adventia but also in the media and intima coatings. These features are higher in degree, more extensive in penetration and destructive of the normal arrangement of the tissue, the nearer to the inflammatory process the vessel lies. In marked examples normally disposed connective-tissue fibers and smooth muscle-elements are forced asunder by this infiltration, and at some points the changes closely approach disintegration and necrosis. Occasionally blood will coagulate and begin to organize over such an area. The degree of weakening to which this process may subject the wall is illustrated by the formation of a true aneurism as a late sequela of suppuration in one of his cases, which later burst. The next step in these processes is that of localized erosion, which may be of almost any relative size and form. In such under the microscope there are found advancing death of tissue commonly extending inward and sometimes by a clot. The sum-total of these findings differs from those shown in the admirable monographs of Marchand and of Weber in depicting a mere type of process, probably because Frommer's specimens are obtained from the field of operation at the time of the treatment, while those of these authors are dissecting-room revelations. The practical therapeutical application of this pathogenesis is that in operating, it is probably wiser not to make incisions any longer than absolutely necessary in order to avoid damage to the vessels, in the first place; and in the second place, it is advisable to remember possible connections with large vessels had by extensive and deeply-seated abscesses, and therefore to have attendants warned of the possibility of secondary hemorrhage and commanded to have every possible means of checking it at hand. In this connection he has found gauze packing unreliable, in that, after temporary cessation, the flow usually is renewed with great activity. Therefore ligature of a large artery proximally and sometimes distally to such a bleeding zone is the only rational treatment. The caution of such secondary operation is always to tie in sound vessel-wall.

Crushing Injuries of Joints.—In the treatment of compound injuries of the large joints with extensive injuries to bones and soft parts, drainage of the joint cavity at the primary dressing is generally advised. J. G. Sheldon (Phil. Med. Journ. July 12, 1902) believes that primary drainage is not only unnecessary but even harmful. He proceeds as follows: After cleaning the injured parts as thoroughly as possible, the detached fragments of bone are either removed or placed in their proper positions. The joint cavity is completely closed by the suturing of ligaments or muscles. The defect in the skin is not closed. The author reasons that the skin and subcutaneous structures are subject to more trauma than the deeper ones and more unclean material is ground into them. This makes disinfection more difficult and also reduces their vitality. The deeper structures can be more readily rendered sterile. The advantages claimed are: The clean joint cavity is protected from the unclean superficial structures, which are thoroughly drained, and the possibility of secondary infection of the joint cavity is diminished. If secondary drainage becomes necessary, because the deeper structures have not been rendered aseptic, it can be easily done. Attention is, however, called to the fact that a considerable quantity of fluid may be present in an injured joint, and still the latter may be clean and remain so.

Sub-phrenic Abscess.—A retro-peritoneal abscess on the left side is usually due to disease of the kidney or trauma, but one following appendicitis, it is claimed by E. A. DARLING (Bost. Med. and Surg. Journ., July 17, 1902), has never been reported. His case is interesting because of the obscurity of the diagnosis while the abscess was developing and because of the rarity of suppuration in this region as a sequel to appendicitis. The patient in question developed an attack of appendicitis for which operation was done, resulting in the removal of a gangrenous and perforated appendix without evident signs of pus. About two months later signs of a localized abscess developed on the left side but its location either above or below the diaphragm was doubtful. An incision as for nephrotomy was made and the abscess located behind the peritoneum, bounded by diaphragm, spleen and kidney. None of these organs, or any of the neighboring bony processes, were involved. The infection apparently crossed the median line, but whether by vascular or lymph-channels is speculative. A tuberculous origin could be excluded.

Eventration of the Diaphragm.—Besides the genuine and false hernias of the diaphragm there is also a rare affection known as eventration where there is no hernial sac and no separation of the fibers of the diaphragm, but instead, a general thinning out of the entire half of the muscle. A case of this kind is described by H. DOERING (Deutsch. Arch. f. klin. Med. Vol. 72, Nos. 5 and 6). The dilation reached up to the spine of the scapula so that instead of normal pulmonary resonance there was tympany due to the intestines over the lower part of the left chest. A microscopical examination showed that all the layers of the diaphragm were preserved, but very thin. Clinically it is of slight importance to distinguish between this and hernias, but a higher degree of displacement on the part of the heart and left lung, together with an unchanged form of the thorax, generally speak for the eventration. In the case cited there were few symptoms until shortly before death, when the hypertrophied right ventricle began to fail. It is probable the condition began in early youth and had its origin in the absence of respiratory movements on the left side whereby the corresponding lung remained small and the increasing negative pressure in the thorax forced the abdominal contents upward.

Foreign Bodies in the Lungs.—The entrance, retention and presence of foreign bodies anywhere in the anatomy are followed by certain symptoms and then by more or less well-determined pathological processes. If the viscus into which the foreign body has penetrated be one of activity like the lungs, this symptomatology is sure to be much more pronounced. T. A. KORTEWEG, of Leyden, (Annals of Surgery, July, 1902) concludes as to foreign bodies in the lungs as follows: Those bodies which enter through the larynx, if they do not at once cause suffocation, may sometimes be borne easily enough for a short or a considerably long time. If smooth and round, or of regular outline, they are commonly coughed out or maybe removed by a tracheotomy. If the bodies are of rugged outline, even when retained for some time and until suppurating processes have occurred, after removal by tracheotomy the prognosis becomes as a rule good. If, however, the body, no matter what its kind may be remains in the lungs indefinitely, the final result is necessarily the death of the patient. The same results ensue if the foreign body has been introduced into the viscus by force from without, such as in the case of gunshot wounds. The pathological process incident upon all these cases is briefly this: Around the foreign body follows decubitis and behind it necessarily retention of mucus. The ensuing inflammation and swelling only make this situation worse. In some cases the symptoms of ulceration prevail while in others those of retained pus and abscess-formation are predominant. The mucus retained by the blocking of the bronchi by the body, and the damage by the body to the delicate lung-structure render the dangers of infection more and more definite. The bronchus closed by the body distends partly by the force of the actual damming back of the mucus, partly by the efforts at coughing always chronic and violent, and partly by the negative pressure of the surrounding active lung. The condition within the lung is now such as to provide lobar pneumonia. As soon as this viscus circle of retention, infection, dilatation, and inflammation occurs it is hopeless to try to stop the process. In this stage will be seen the expectoration, fever, physical signs and symptoms of a gangrene of the lungs which sooner or later has a fatal termination.

Intestinal Obstruction.—In a case of intestinal obstruction the continued use of cathartics is, of course, one of the most harmful procedures that can be undertaken, and yet the general practitioner is frequently guilty of this mistake, usually because he does not fully appreciate the nature of the trouble. E. A. BALLOCH (Washington Med. Annals, July, 1902) urges that the surgeon should be called in earlier because it is really a surgical condition, and if operation is to be successful it should be done before the characteristic stercoraceous vomiting begins. High rectal injections are, perhaps, the best means of averting an operation and these should be thoroughly and persistently used, perhaps, for several hours. Lavage is also beneficial in removing any irritating substances from the stomach and in allaying vomiting. The persistent use of cathartics has the unpardonable effect of causing such an irritability of the stomach and reversed peristalsis of the intestines that even after an operation has been performed and the obstruction removed, the patient may continue to vomit in spite of all measures undertaken.

While we may not see in any one case all the cardinal symptoms of obstruction, viz., pain, constipation, vomiting, tympanites and tumor, yet the diagnosis should be made in most cases without much difficulty. The occurrence of vomiting, in connection with absolute constipation, renders the diagnosis practically certain, and if to these are added distension and a weakening pulse obstruction may be diagnosed positively. The temperature is usually subnormal, differentiating it from inflammatory conditions. The function of the physician is to make an early diagnosis and if high injections prove unavailing to seek the aid of a surgeon before it is too late.

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RHEUMATISM AND DAMPNESS AND PROPHYLAXIS.

IT is the custom to think that acute articular rheumatism is associated practically always with dampness. As a consequence the disease is assumed to be most frequent towards the end of winter and in the beginning of spring, and to be quite rare towards the end of spring when the weather has settled down into the warmer, drier temperature that resembles early summer. As a matter of fact, hospital statistics seem to show that rheumatism is more frequent during May than during any other month of the year.

At Charing Cross Hospital in London, as pointed out by Bosanquet in the London *Lancet*, June 2, 1900, two months in the year show a maximum frequency of rheumatism in a series of years. These are May and November with a distinct tendency for the usually warm spring month to surpass the blustry November in fostering the disease. There is not, however, a very marked difference in the incidence of acute articular rheumatism at one period of the year as compared with another.

This is what is to be expected if the present prevailing theory as to the etiology of rheumatism be correct. The disease has been transferred by all the clinicians from the category of affections of metabolism to that of infectious diseases. The microbic cause of the disease is probably always present in the atmosphere. The predisposition to be affected by the microbe may be acquired more easily at one season of the year than at another, but opportunities for infection are not lacking at any season of the year. There is a tradition that damp localities are much more favorable to the development of the disease than others, yet it has never been shown that the people living along the sea-coast of a country are more subject to acute articular rheumatism than are others. This fact has become so notorious, though the theory of dampness being associated with rheumatism still prevails popularly, that it has been deemed necessary to invent an explanation for it. Accordingly there is a widespread tradition that salt-water dampness is unlike fresh-water dampness as regards the absence of the tendency to produce rheumatism.

Rheumatism is known to occur in high, dry mountainous regions and in warm, dry seasons. The Bedouins of the desert suffer very severely and even frequently from the disease. Dr. Wm. H. Thomson pointed out at a spring meeting of the Section on Medicine of the New York Academy of Medicine (see MEDICAL NEWS, April 12, 1902, p. 715) that hot, dry countries are not free from the disturbance of cutaneous transudation that seems to predispose to acute rheumatism. When the Arabs lie down in their tents at night the warmth of the sun is still in the air and they perspire very freely. Before morning, however, the marked fall of temperature that occurs during the night leads to an abundant deposition of water from the air. This heavy dew, so characteristic of very dry regions, seems to have a direct effect in predisposing patients to the acquisition of rheumatic fever.

Some such factor would seem to be at work even in temperate climates like our own, for it is well known that the first few very warm nights of spring are apt to be followed by a series of cases of genuine rheumatism, quite apart from the painful conditions that may follow chilling. More important than any extraneous factor, however, would seem to be the internal predisposition of the patient. Those who have once suffered from rheumatism are known to be predisposed to its recurrence. Those who acquire the disease for the first time will usually be found to have been in a condition of deteriorated health when affected. Undoubtedly, however, there seems to exist a rheumatic diathesis in the sense that some people are liable to the disease and others, although apparently living under similar conditions, are not. Hence if individuals are to suffer from rheumatism, the disease manifests itself very early in life.

Bosanquet, in the article quoted at the beginning of this editorial, analyzes 450 cases which occurred at Charing Cross Hospital, London, in the eight years prior to 1898. Nearly three-fourths of the whole number of cases occurred in patients who were in the second and third decades of life. Of the first attacks treated more than one-half the cases occurred between the eleventh and twentieth years, although rheumatism is often thought to be a disease especially of later life. People who live an outdoor life subject to the inclemencies of the weather—cabmen, car-drivers, railroad-men and the like—were not found to constitute the majority of the patients. On the contrary those who follow an almost exclusively indoor occupation, clerks, house-servants, etc., were the favorite victims. It is well recognized all over the world that domestic servants form a good part of those especially liable to rheumatism. Their indoor life predisposes to anemic conditions and in some way through this to rheumatism. It is well known to what an extent anemia may develop as a consequence of rheumatism; anemia appears also to be a favorable predisposition to the disease.

In a word it would seem that most of the notions connecting rheumatism with dampness must be modified. No season gives assurance against the disease and those who, because of previous attacks, are known to be predisposed, must avoid overexertion and fatigue at every season. The influence of heredity in rheumatism is hard to estimate, for every painful joint condition, from flat-foot to occupation neurosis, or the relics of an old dislocation, has been called rheumatism in the past and would surely be counted as such in the family history.

It would seem, however, that more than one attack of acute rheumatism in previous generations indicates the existence of a family tendency that should lead to the exercise of careful prophylaxis as far as possible. Active prophylaxis consists much more in the avoidance of run-down conditions than too great solicitude about damp surroundings. Air and sunlight are the best prophylactics and confinement to the house even in damp weather, far from being protective, is probably an incitant of the disease.

ESCAPED GAS AND HEALTH.

The last meeting of the New York County Medical Society for the year had for the subject of its scientific proceedings an extremely important and unexpectedly interesting matter. The Symposium on Gas Leakage in Large Cities from the standpoint of the gas expert, and certain clinical suspicions, open up a new field of what may be called city pathology. To most people and to none more than to physicians, it must come as a distinct surprise to learn that there is such an immense amount of gas leakage in our large cities. Millions of cubic feet per day lost from the mains is the statement that boards of directors of gas companies have periodically reported to them. Modern conditions in our large cities have made this of even more serious significance than it was some years ago. The impermeable sidewalk and pavement of asphalt now make the ready diffusion of escaped gas into the atmosphere an impossibility. The consequence is the imprisonment of the gas beneath the streets to find an exit wherever it can into subways, sewers, and through the cellar walls of neighboring houses.

This produces a condition of affairs that is eminently undesirable. The illuminating gas of the present time is an extremely dangerous poison. Modern improvements in its manufacture, far from making it less dangerous, have added to its toxic qualities and have rendered it more insidious in its effects. The introduction of the so-called water gas, now practically exclusively used as the basis of illuminating gas, has cheapened the cost of production but has greatly added to the amount of carbon monoxide present in gas. This material is, as is well known, the most poisonous gas we may be brought in contact with in ordinary life. It is what is called familiarly the "blue gas" that may be seen burning above a coal fire, and its presence, even in minute quantities in inspired air, causes an intense tired feeling and gives rise to loss of appetite and headache. Much of the lassitude that is felt in a room heated by a stove on a day when the action of a high wind interferes with the draft is due to scarcely more than traces of this gas present in the atmosphere. It is much more dangerous than carbon dioxide, though this latter gas is talked of so much more frequently. It is, in fact, the presence of carbon monoxide in considerable quantities that makes cases of gas poisoning so much more serious and more hopeless than they were years ago. Prompt rescue of the patient and the employment of all the ordinary means known to medical science may prove unavailing against a fatal termination in these cases, even though the patient has not been long exposed and does not seem hopelessly depressed. Carbon monoxide is prone to produce such lesions of the central nervous system that recovery from them is impossible.

Dr. Lloyd adds to the seriousness of the picture by the cases he presents in which there is good reason to suspect gas poisoning. It is true that in Dr. Lloyd's cases the etiological element would seem to be sewer gas, not illuminating gas, but there are many reasons for adopting the opinion of gas experts that the pathological element in sewer gas is really the carbon monoxide of escaped illuminating gas. It is well known that excavations, in which the presence of asphyxiating gas is feared, may be considered safe if tests for the presence of carbon monoxide prove negative. Men who work in sewers do not suffer from the gases that are given off, and the atmosphere of large sewers like those of Paris is not laden with bacteria. The health of the workmen engaged in the London sewers or on the immense sewage farms outside of Berlin is better than that of the average of the general population, as has been proven by carefully kept statistics. These workmen seem to suffer from the infectious intestinal diseases, such as typhoid fever and dysentery, even less than the same class of working people engaged at other occupations.

It would seem fair, then, to assume that the presence of the extremely diffusible and intensely poisonous carbon monoxide from escaped illuminating gas is the cause of the pathological conditions usually attributed to sewer gas. On that assumption there is good reason for serious alarm over the present gas leakage in large cities as an element of danger to health. There are many anemic conditions constantly brought to the notice of the family physician in cities for which it is extremely difficult or even impossible to find a satisfactory reason. At times these conditions are accompanied by fever, loss of weight and appetite, and by constitutional symptoms that make them dangerous. Dr. Lloyd's cases would seem to be suggestive of at least one possible explanation, which is usually overlooked. While sewer gas is sometimes spoken of in general as a pathogenetic factor it is seldom thought of as the causative element in a particular case.

The present state of affairs with regard to gas leakage demands decisive action on the part of city boards of health. As in England there should be some standard of the allowable toxicity of illuminating gas, for the tendency of the gas companies at the present time is to furnish an ever increasing proportion of the undesirably dangerous "water gas." It is probable that the frequent complaints of the poor quality of illuminating gas furnished at busy seasons in New York City are due to the failure of the companies to properly dilute and carburet the water gas supplied. Now that the building of the underground road has given the opportunity for a full and detailed knowledge of the situation of gas pipes in our principal streets and for their proper location within easy reach, it would seem that an earnest effort should be made to prevent the present enormous gas leakage. Meantime the direction of the attention of physicians to this important possible source of pathogenetic elements will undoubtedly lead to more definite knowledge as to the dangers involved and furnish opportunity for more careful clinical investigation of many obscure cases of anemia and neurasthenic conditions that have hitherto baffled explanation.

City life is distinctly more dangerous than life in the country. The average age of death, for instance, in Paris, in 1900, was a little over thirty-one years while the average age in the country places of France was nearly thirty-six years. Many accidental traumatic factors contribute to this shortening of human life, but most of the reduction of the age limit is due to the pathologic conditions of overcrowding, insufficient air, chances for infection, etc. No effort must be spared to correct this state of affairs since the present trend of population is towards centralization in crowded centers. One of the most important hygienic elements of city life is the purity of the inspired air, and this cannot be improved unless the deleterious contents of gas mains are prevented from finding their way as easily as is at present the case, into dwelling houses and office buildings. Every element of danger must be realized, and its amelioration carried out, if the present living conditions are to be materially improved and the death rate kept low notwithstanding the increase of population.

"KEEP OUT OF THE MIDDLE OF THE ROAD."

Now that the dog days are upon us and Sirius is blazing with fiery eyes from the cloudless sky, it is well for us to pay a little more attention to the common laws of health, to what we eat and drink, to what we wear, and above all to what we do. For it is the doing of the American individual that leads to his undoing as a business man, that fills the "rest cures" with patients and chronicles so many "break-downs," at just the age when as a bread-winner, he should be at his best.

It is not a question of hard work, nor even one of overwork, for of these the human body and mind can endure much, nor is it alone carking care, which has killed more than the proverbial cat, but it is a steady and unrelaxing attention to one subject, a devotion to details of daily occurrence, and a fixed routine that go to making up the pace that kills. For in carrying any load it is as necessary to "change hands" with the mental concentration that has by long habit grown to be a part of us, as it is to relax the muscles which have become cramped and stiffened by physical labor. The exhausted muscular tissue loses its contractile strength and refuses to respond, while the mental process becomes one-sided, and predominant to the exclusion of the others, like sweet bells, jangled, harsh and out of tune, until the wages of these sins, if not death, are often despondency, depression, and nervous prostration.

It is not necessary to relinquish one's business entirely or to take an opera box for a season. What is needed is a change of scene and surroundings, at intervals a new employment of sufficient interest to keep the mind and body refreshed—something between the collection of postage stamps and ping-pong—be it golf or tennis, prize editions or book plates, according to the taste or income of the individual. We have all read of Bret Harte's "heroine who lost her life from an inability to ride three horses to oncet." To few of us perhaps is that power given, but we can all mount two hobbies—our business and our pleasure—and the oftener we change the relays the longer can we keep the saddle, and the firmer will be our grasp on the reins of both.

If this is true in the brisk, invigorating winter, it is still more so in the moist, muggy relaxing days, days that try men's souls and where the very breeze that keeps us cool, shows between the blades of the whirling fan, the familiar background of the setting of our daily toil. If we cannot escape all this for a length of time sufficient to be dubbed and dignified as a vacation, and to establish ourselves permanently as "rusticators," we can at least steal a day or so at a time and become "trippers." If we are doomed not to feel the kick of the heavy rifle against our very shoulders, or to hear the spin of the revolving reel, there are always links within reach and steamers which go down the bay, to say nothing of the easily attained delights of the suburban philosophy of Omar Khayyam—"A book of verse underneath the bough, a jug of wine, a loaf of bread."

As to the latter, however, in these piping days of peace and heat, it is well to be moderate—enough is as good as a feast, and as a nation we not only eat too much but too often. In the primitive days when the woods were full of both Indians and game, and it was generally a mooted question which should be shot first, the hours of refreshment were irregular and the supply uncertain; but now our meals have become fixed feasts and often also serve as a time-killing device, so that we rarely leave the table without a feeling of repletion, and we are seldom really hungry ere we eat again. Thus the daily taking in of a little more than can be used or assimilated leads to an overworking of the liver and a distension of the stomach, while the circulation of a hyperplastic blood produces torpor and sluggishness and the general putting on of katabolic flesh.

The summer will not last forever, but it is to be followed by the winter's work, so that now is the time for us to see that we meet it in a logical and sensible way, paying out as little of our health and power of resistance as we can until the heat of the day has passed and the unblushing Sirius winks his other eye on the migrating swallow's homeward flight.

So let us eat but to live, and avoiding routine, both physical and mental, cling to the bridle paths and the unaccustomed by-ways of life, while we shun the beaten high-road, with its well-worn "ruts."

ECHOES AND NEWS.

NEW YORK.

The Lying-in Hospital.—During the past month the new Lying-In Hospital, Seventeenth Street and Second Avenue, has again illustrated the foresight of its founder. Of 182 applicants for ward treatment, it has admitted and cared for 155. The number of children born in the hospital in July was 104. During the same period in the out-door department 325 persons applied for assistance in their own homes; 239 patients were treated in confinement; 1,120 medical visits were made and 1,089 visits for assistance and aid, 268 patients being found so absolutely destitute as to require extra assistance during their illness, each being helped by a trained nurse and a scrubwoman, who cared for the rooms and performed various household duties.

Increase of Insanity.—During the summer months there is always an increase in the number of patients taken to the insane pavilion in Bellevue Hospital. This summer, however, has broken all records. One day last week fourteen patients were put in the ward, ten of whom were women. On Wednesday of last week four men and four women were admitted, and on Tuesday four men and seven women were taken there. The average number of insane patients received at the hospital daily has been eight this summer. Formerly the average has been three. The proportion of women admitted this summer has been greater than ever before. In previous years the number of men and women has been about the same. This year about 75 per cent. of the insane patients are women. Dr. Packer, who is in charge of the insane pavilion, is reported to have said that he was at a loss to explain either the increase in numbers or in the percentage of women patients. He said also that more cases of incurable insanity are being received than ever before.

Regulations Regarding Mad Dogs.—President Lederle of the Board of Health is drafting a new section for the Sanitary Code, to take the place of No. **95**, relating to dogs. The present section provides that when a dog that has bitten a person is mad, or shows signs of hydrophobia, it shall be killed. When Commissioner Lederle's changes are made, the Board of Health will be empowered to keep such dogs under observation for ten days in the laboratory at the foot of East Sixteenth Street. If it is decided that they are not mad, they will then be returned to their owners, but if they are mad or have symptoms of hydrophobia, they must be killed. The new section will also make it unlawful for the owners of such animals to take them out of the jurisdiction of the Board of Health. The change is in line with the recommendations of the most advanced experts. Only by keeping and observing the dog is it possible to determine whether it is actually the victim of rabies, a point on which the treatment of the victim absolutely depends.

Status of Coroners' Physicians.—A peculiar legal argument was waged this week in the Supreme Court before Justice Greenbaum, who may give a decision which would force all the coroners' physicians in Manhattan out of office, whether they have passed a civil service examination or not. The point was raised as a result of the effort by friends of Dr. Otto E. Schulze to secure for him the position of coroner's physician to fill the vacancy caused by the resignation of Dr. Hamilton Williams. Dr. Schulze stands first on the eligible list of the Civil Service Commission, but the commission certified to the Board of Coroners the name of Dr. S. E. Whitman, who was on a preferred list, by advice of the Corporation Counsel, because the position which he had held in the borough of Richmond had been abolished by a reduction in the number of coroners. The board refused to appoint Whitman, and he applied for a writ of mandamus. Edgar M. Leventritt argued for him, citing the mandatory provision in the charter that persons put out of civil service office by abolition of positions should be appointed to the first vacancies. Lawyer Russell argued for Dr. Schulze that the law gave to each coroner the right to appoint his own physician, and if the charter took away this right under color of holding that the physician was under the protection of the civil service law, then the provision was unconstitutional. Mr. Leventritt answered this argument by declaring that if the point were well taken it would mean that none of the coroners' physicians in Manhattan held his office legally, none of them having been appointed by the present coroners. Mr. Russell said that the duties of a physician in Manhattan are very different from those in Richmond. Justice Greenbaum asked counsel to submit affidavits as to the similarity of duties in Manhattan and Richmond, and reserved decision.

PHILADELPHIA.

Medico-Chirurgical Hospital.—A model emergency ward has just been completed at the Medico-Chirurgical hospital. Emergency cases were formerly treated in the regular wards on the upper floors. The new ward has been formed from the front part of the basement at a cost of $2,000 and contains 16 beds.

Coatesville to have New Hospital.—A new hospital to cost $60,000 will be erected in Coatesville, Pa., ground having been broken the first week in August. The building will be situated on an elevation south of the borough where the best of water, ventilation, and drainage will be secured. This hospital is the outgrowth of the Huston Memorial hospital established three years ago.

Restrictions on Drunkards at Philadelphia Hospital.—Only unusual cases of drunkenness are to be admitted to the Philadelphia hospital in the future, the new regulation being designed to prevent habitual drunkards from making their home in the hospital. The increase in the population of the almshouse and hospital from 3,000 to over 4,000 during the last few years has been largely due to laxity in the regulations regarding the admission of intoxicated persons. The new rule is intended to reduce largely this number.

CHICAGO.

Resignation of Dr. Tracy.—Dr. Evert E. Tracy, resident physician at the Joliet penitentiary, has resigned for the purpose of re-engaging in private practice in Chicago.

Deaths of the Week.—Notwithstanding the typhoid fever epidemic, the 555 deaths reported during the week were only 10 more than during the previous week, and there were 54, or nearly 30 per cent. fewer deaths of infants. The death rate per 1,000 was 15.92, which compares unfavorably with that of the previous week, 15.60, and with 13.87, the rate for the corresponding week of 1901.

Warning Against Typhoid.—The Department of Health issues an urgent warning against typhoid fever. Typhoid fever is more prevalent in Chicago to-day than it has been at any time since 1890 to 1892. The department wishes to shock the public into some realization of the nature and the sole cause of the disease. Every case results from taking into the stomach poison from the intestines of some previous patient. The disease can be contracted in no other way. The poison is most frequently conveyed by typhoid-polluted drinking water. At present, however, in Chicago it is feared that milk, vegetables and fruit are also polluted by excessive rainfall over the city and adjacent territory. This has flooded sinks and vaults, and has poured the filth accumulated during previous dry months into the streams and wells that furnish water for washing dairy utensils, and over fields of growing vegetables.

Dunning Needs Cash.—The responsibility for conditions at the Dunning Insane Hospital making it possible for a patient to be fatally injured a few days ago in a fight with other patients, is placed by Dr. Hugh T. Patrick on an apathetic public which has failed to provide the patients with adequate accommodations for a sufficient number of attendants. Dr. Patrick's statements are based on his own observations as a member of the committee which several months ago studied the needs of the institution, and made suggestions for the reorganization of its medical staff. Dr. Patrick says the quarters should be doubled.

Regulations Concerning Medical Education in Illinois.—The Illinois State Board of Health has drawn up a schedule of minimum requirements for the regulation of medical colleges. The conditions of admission to lecture courses are (1) A certificate of moral character, and (2) evidence of preliminary education, of which a high school diploma represents the minimum requirement. Admission to advanced standing is based upon an equivalence of work done in other institutions recognized by the State Board. The curricula of the medical schools are to embrace four years of instruction, aggregating at least 40 months. The branches of medicine to be embraced in the course of instruction must include at least the following: (1) Anatomy, (2) Physiology, (3) Chemistry, (4) Materia Medica and Therapeutics, (5) Theory and Practice of Medicine, including Ophthalmology, Otology, Dermatology and Neurology, (6) Pathology and Bacteriology, (7) Surgery, including Orthopedic Surgery, (8) Obstetrics, (9) Gynecology, (10) Hygiene, (11) Medical Jurisprudence (Forensic Medicine). The regulations also prescribe dissection, lectures, clinical courses, and regular attendance on the part of the student.

CANADA.

Toronto and Montreal Smallpox Records for 1902.—Since January 1 Montreal has had to deal with no less than 500 cases of smallpox, while during the same time Toronto has had only 28 cases. There have been no cases in Toronto for some time, but Montreal has now 18 cases. Since January 1 there have been 11 deaths from the disease in Montreal; in Toronto, one. Out of the total of 500 cases in Montreal, 432 had never been vaccinated.

Appointments.—Dr. Goldwin Howland of Toronto has been appointed registrar of the National Hospital for Nervous Diseases, London, England. Dr. Telesphore Parizeau has been appointed professor of pathology and surgery at Laval University, to succeed the late Dr. Brunnelle. Dr. Parizeau is a graduate of Laval and for some years after graduation he walked the hospitals of Paris. He is a member of the visiting staff of the Notre Dame Hospital.

Canadian Medical Association.—The provisional programme of the thirty-fifth annual meeting of the Canadian Medical Association, which meets this year on September 16, 17 and 18 in Montreal, has been prepared and issued. Among those who will contribute papers to this meeting are Dr. William Osler, who will deliver the address on Medicine; Dr. John Stewart, Halifax, N. S., the address on Surgery; Dr. William Corlett, Cleveland, who will conduct a lantern demonstration on the exanthemata; Dr. James Stewart, George E. Armstrong, A., D. Blackader, James Bell, Lapthorn Smith, F. A. L. Lockhart, David A. Shirres, Montreal, Alexander McPhedran, George A. Peters, A. Primrose, G. S. Ryerson, F. N. G. Starr, G. H. Burnham and D. C. Meyers, Toronto, Dr. Alexander Hugh Ferguson and Dr. Casey A. Wood, Chicago, Dr. A. R. Robinson, New York, Dr. O. M. Jones, Victoria, B. C. The entertainment committee has provided a fine programme, and numerous clinics will be held at the various Montreal hospitals during the course of the meeting. A very large meeting is looked for.

Obituary.—Dr. Horsey, Liberal member of Parliament for the constituency of North Grey, was accidentally killed a short time ago by the bursting of a flywheel at the Owen Sound Cement Works. He was a graduate of Queen's University, Kingston. Dr. J. C. Prieur of Coteau Station, Que., died on the 9th inst. He was born in 1869 and was graduated from Laval University, Montreal. Dr. Thomas Christie, M.P., died at Lachute, Que., on the 5th of August. He was born in 1824 in Glasgow and was graduated from McGill University in 1848. Dr. J. A. S. Brunnelle, Professor of Pathology and Surgery in Laval University, Montreal, died suddenly at his summer residence at Mountain View, New York, a short time ago. He was born in 1852 and was for over 27 years a physician to the Hotel Dieu Hospital.

GENERAL.

Dr. Guiteras' Return.—Dr. G. M. Guiteras, the yellow fever expert of the United States Marine Hospital Service, after an absence of three years in Cuba, arrived in New York on the steamship Olinda this week. Dr. Guiteras has been ordered to Philadelphia. He stated on arrival that Havana and Matanzas were in excellent sanitary condition.

Bismarck's Physician.—It is reported from Berlin that Dr. Schweninger, the well-known physician to Prince Bismarck, has been appointed Professor of the History of Medicine in the University of Berlin. Bismarck, who was always a great admirer of the Munich physician, sought to procure for him a chair in the University as long as 20 years ago, but failed, owing to the opposition of the faculty. Schweninger has neither written nor lectured upon the subject of which he is to become professor.

Dr. Lung Surgeon to the President.—Dr. George Augustus Lung, Surgeon U. S. Navy, has been selected by the Navy Department for duty as Surgeon to the President to succeed Dr. John F. Urie, who was made Assistant Chief of the Bureau of Medicine and Surgery. Dr. Lung entered the naval service in 1888. He was born in New York. His excellent record and active service commended him to the Navy Department for his new assignment. He is now on waiting orders in New York, having been detached from active service last December.

A Safe Age.—The insuring of one's life is most apt to be put off. There are few, however, who postpone what ought to be the inevitable until so late a period in life as did the tough old smackowner of Grimsby, England. When he presented himself at the insurance office he was naturally asked his age. His reply was "Ninety-four." "Why, my good man, we cannot insure you," said the company. "Why not?" he demanded. "Why, you are ninety-four years of age." "What of that?" the old man cried. "Look at statistics, and they will tell you that fewer men die at ninety-four than at any other age."

Tuberculosis and Medical Students.—Yale men have received word that Dr. H. F. Scofield of Bridgeport, Conn., is dying from consumption in Denver. He was a student at Yale until three years ago. He made a specialty of the study of tuberculosis. Out of a class of forty-four he is the eleventh to contract consumption while endeavoring to discover a remedy for the disease. Scofield, while here, sought out the most aggravated cases for treatment. He was indefatigable in the work of the Yale Medical School until he contracted consumption, when he had to go West to finish his medical studies in Denver.

Cholera in Japan.—It is reported that the epidemic of cholera has spread from Manila and the ports of China to Japan. Up to the middle of July cases and deaths had been reported officially as follows: Tokio, 4 cases, 3 deaths; Saga, 75 cases, 42 deaths; Nagasaki, 3 cases, 3 deaths; Fukuoka, 102 cases, 73 deaths; Fukuoka Jail, 27 cases, 12 deaths; Formosa, 19 cases, no deaths; total, 231 cases, 142 deaths. The number of cases in Fukuoka Ken up to July 16 was 121, of which 93 were fatal. A Tientsin dispatch of July 11 says that the number of cases in the city up to that date was 1,049, of which 764 were fatal. The total in the northern section was 1,015, with 593 deaths. The epidemic is abating.

Psychopathic Hospital Work.—Under the auspices of the trustees of the Psychopathic Hospital, a department of the New York Infirmary for Women and Children, a collection of psychopathological researches treating of mental dissociation has been prepared by the director of the laboratory, Dr. Boris Sidis. Dr. Sidis was formerly associate in psychology of the Pathological Institute of the New York State hospitals. The book consists of a series of experimental studies in the domain of abnormal mental life. The Psychopathic Hospital is a recently established institution for the observation and treatment of patients in the initial stages of mental derangement. The project received the support of the New York State Board of Charities.

Site for the King's Sanatorium.—A site of 120 acres at Lords Common, near Midhurst, Sussex, has been selected for the King's Sanatorium, the erection of which was made possible by the munificence of Sir Edward Cassel. It would be difficult to find a more healthy place. The elevation ranges from 500 to 600 feet above the sea level, in the midst of charming scenery and a pine forest, and it makes an ideal site for a sanatorium. The contract for the water supply has been intrusted to Messrs. Duke and Ockenden, of Littlehampton and London, who are commencing operations immediately. The plans for the sanatorium itself have not yet been selected. It is intended that it shall be the most scientifically constructed and equipped building for its purpose in existence.

Barbers Again.—In order to prevent any possibility of contagion from the use of barbers' implements, the Board of Health of Orange, N. J., has ordered that barbers shall thoroughly wash all brushes, combs, razors, and other utensils used by them in boiling water before beginning business each morning. After finishing with each customer, a barber, before using a razor again, must thoroughly wash it in an antiseptic solution. The board also has adopted a rule requiring saloon or restaurant keepers to wash thoroughly in water which has been used for no other purpose every glass or drinking vessel before serving a drink. A penalty of $10 is fixed for every violation of either order, and the board will have inspectors at work to see that the provisions are obeyed.

Obituary.—Dr. Nicholas Williamson, Mayor of New Brunswick from 1896 to 1902, died August 15 of typhoid fever and the results of overwork. He was fifty-four years old. He studied medicine while paymaster in a local button factory, and became a leading physician of New Brunswick. In 1884, when the city was threatened with bankruptcy, he was a prominent member of the committee which saved its credit and prevented repudiation. All the flags in the city were placed at half-mast, and the day of the funeral was observed as an occasion of public mourning.

Dr. Leopold Schenck, famous for his theory on the determination of sex, died August 18, at Schwanberg, in Styria. That the sex of children could be determined by the dieting of the mother prior to the child's birth was the theory with which Dr. Schenck astonished the world in 1898. He was at the time Professor of Embryology in the University of Vienna, and his doctrines received very serious, though generally incredulous, attention from medical men in all parts of the world. Since that time Dr. Schenck has frequently discussed his theories in public. He has published a volume entitled "The Determination of Sex." His colleagues in the Vienna institution of learning finally became convinced that the doctor was seeking notoriety, and last year he was retired on a small pension. It is said that this completely crushed his spirits. The keynote of Dr. Schenck's treatment was diet. He held that mothers desiring sons should abstain from the use of sweets and other rich foods. He said that the sex of a child was dependent upon the number of corpuscles in the mother's blood.

CORRESPONDENCE.

CELIOTOMY ON BATTLE-FIELD.

The Editor of the Medical News:

Dear Sir.—Will you kindly allow me to correct a statement of Dr. Grant, on page 1158 of your journal of June 14, 1902? The statement is:

"Dr. Grant of Louisville had just come from the meeting of the Army Surgeons and said that they were of one opinion, viz., that successful laparotomies could not be done on the field of battle."

I, for one, am not of any such opinion as evidenced by my paper, "A Further Consideration of the Necessity for Immediate Celiotomy in Penetrating Gunshot Wounds of the Abdomen in War," read by title before the Association of Military Surgeons of the United States, June 7, 1902, and briefly reviewed in the Medical Record, August 2, 1902, page 200. This paper will appear later in the Journal of the American Medical Association. I not only believe in celiotomy on the battle-field but have done it there successfully.

Chas. E. B. Flagg,
Captain, Assistant Surgeon U. S. Army.

Fort Grant, Arizona, August 13, 1902.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

PYROPLASMOSIS IN THE DOG—SYMPTOMS OF HYDATID INTOXICATION SECONDARY TO AN OPERATION FOR HYDATID CYST OF THE LIVER—GANGRENOUS APPENDICITIS—ACQUIRED EXSTROPHY OF THE BLADDER THROUGH THE NATURAL PASSAGES—HYDATID CYST OF THE KIDNEY TREATED BY PARTIAL EXTIRPATION OF THE KIDNEY—STRANGULATION OF THE INTESTINE BY BAND—SYPHILIS, TABES DORSALIS, GENERAL PARALYSIS AND THE PUPILS—LOCAL TREATMENT OF ISOLATED RHEUMATISM.

Nocard at the Academy of Medicine June 7, 1902, read a paper on pyroplasmosis in the dog. He said that he had been studying this subject with Professor Motas of Bucharest. He defined the malady as characterized by the presence of organisms in the blood which are transmitted to the animal by the bite of insects similar to the tick. The affection manifests itself by fever, bad temper, prostration, blood in the urine, jaundice, and finally in the grave forms, death after a few days. In the light form there are present only profound anemia and muscular weakness, and recovery as a rule occurs after two or three months. The examination of the blood gives the explanation of the symptoms observed. The number of red blood cells undergoes a considerable diminution. A certain number of them contain one or more parasites comparable to those which are found in animals sick with Texas fever, as described by Smith and Kilborn. The disease is artificially transmissible by injection into the veins or the cellular tissue of the blood containing the parasite. Dogs which have once recovered from the malady remain immune to it for the rest of their lives, so far as this observer has been able to study this point. As to the precise mechanism of recovery he stated that it does not differ materially from that seen in other germ diseases, and consists essentially in a process of phagocytosis. There is this difference, that in these other diseases this process is confined ordinarily to the mononuclear white cells, while in pyroplasmosis it is carried out almost altogether by the polynuclear. The serum of animals which have recovered from the disease possesses the property of destroying the poison of it *in vitro*, or of decreasing the poisonous effects. This again is similar to facts observed in other diseases except in the point that this characteristic of the serum is destroyed by heating it to 56 or 57 degrees C. The serum of dogs possesses equally a preventive action. If injected in large doses 12 or 24 hours before inoculation with the virus the death of the animal is either delayed or entirely prevented.

LEZARS at the Society of Surgery June 11, 1902, read a contribution on the symptoms of hydatid intoxication secondary to an operation for hydatid cyst of the liver. He stated that the cyst was situated on the inferior surface of the liver; had no complications; was indolent, and required operation only on account of the mechanical inconvenience of its size. His technic was the following: After incision of the abdominal wall and free exposure of the cyst itself, he punctured it, but as evacuation did not occur easily he incised it freely, unfortunately without first taking the most minute precautions to isolate it from the abdominal cavity. The operation ended by removing the mother membrane in mass and a resection of the fibrous wall in part outside of this, followed by a simple reunion without drainage. The first day passed well enough, but on the evening of the second day the patient became pale, and on the following morning had increased in prostration and pallor. He had a pulse of 120 and a green vomitus. These symptoms continued and increased until that evening. The outer dressing was removed and the wound found to be in excellent condition, without any signs of infection. By means of injection of artificial serum the condition of the patient rapidly improved and two days after the injection he was on the high road to perfect recovery. The author frankly ascribes these unfortunate symptoms to hydatid intoxication due, no doubt, to failure to wall off the abdominal cavity at the time of the operation.

QUÉNU referred to a communication made before the Society by Walther at a recent session, and previously noted in these columns, on the subject of gangrenous appendicitis and concerning a young girl who presented only localized tenderness of mild degree at the point of McBurney, but in whom, upon laparotomy, a gangrenous appendix was found. Quénu stated that the following facts in this case were of great value. The young patient was examined by the surgeon only 24 hours after the beginning of the attack, at a time when she was somewhat stupified. It is well known that in all forms of peritoneal septicemia, grave peritonitis and gangrenous phlegmons of the extremities, there is a period of active pain, usually of short duration, succeeded by a temporary absence of tenderness, sometimes almost by a kind of anesthesia. In gangrenous appendicitis this phenomenon is apt to be especially well marked and was called by Dieulafoy "the period of treacherous calm" (*accalmie traîtresse*). Another point to which Quénu desired to call attention in gangrenous appendicitis is that it is necessary to know that the diffusion of pain is present usually during the first 20 or 24 hours of the disease. This fact alone possesses great clinical value in his experience.

PICQUÉ discussed a case of acquired exstrophy of the bladder through the natural passages. He had occasion to observe one in a woman about 15 days after Guinard had removed an epithelioma from the urinary meatus which had extended up the urethra. The exstrophy appeared as a small tumor, making the vestibule prominent. This mass had increased rapidly in volume; at first reducible in the horizontal position, it had shortly become irreducible and caused absolute loss of control of the urine. When he examined the woman the tumor was the size of an ordinary orange and appeared to be made up of the entire bladder wall, which projected between the lips. It was red, tender, and presented the usual folds of the bladder wall. The orifices of the ureters could easily be seen at its lower part. To cure this acquired exstrophy he made use of the following operation: After a median abdominal incision and a reduction of the bladder, he sutured this with silk just in front of the womb, which itself was retroverted. Then he made a hysteropexy. The operation was ended by an endeavor to decrease the orifice of the urethra, but without success. The prolapse of the bladder has up to the present time not returned, but the incontinence of urine is still present because in removing the epithelioma the sphincter muscle was sacrificed inevitably.

TERRIER presented a woman of thirty-three years, who had suffered from a hydatid cyst of the kidney, which apparently developed along the lower surface of the liver. He thought possibly it was attached also to the kidney, and therefore made a lateral laparotomy and found that the cyst was entirely independent of the liver and situated in the extraperitoneal fat upon the kidney at its lower extremity. He freed the kidney from its attachments and carefully removed that portion which was the seat of the cyst. He confessed to having made the mistake of puncturing this cyst before its removal, and without having taken any precautions to prevent infection of the wound by its contents. Perceiving the error, however, he flushed the wound out with a strong solution of bichloride of mercury in order to combat the toxin.

ROCHARD read a paper before the Society in the name of G. de Rouville of Montpellier, upon a case of strangulation of intestine which had been in a hernia and reduced by taxis. The vomiting of fecal matter continued after the reduction, so the patient was taken to the hospital and an operation done to find out what was the cause. When the sac was exposed he found that the strangulation was not caused by a reduction of the hernia in mass, as he had at first feared, but by a band within the abdomen and independent of the sac. Unfortunately the patient was in a grave condition and died before the operation was completed. The operator practised, without success, direct massage of the heart. An autopsy showed without doubt that the strangulation had been caused by the band.

DUFOUR, at the Medical Society of the Hospitals June 13, read an instructive paper on the relations existing between symptoms of the pupils and syphilis, tabes dorsalis and general paralysis. He has been making observations on 1,100 patients, adults and aged, afflicted with various diseases, especially with the three named, with reference to the reaction of the pupils. Of these subjects 99, of whom 80 were men and 19 were women, had acquired syphilis. Simple inequality of the pupils as an isolated symptom appeared to him to be usually independent of syphilis or of the other nervous diseases mentioned previously. Its significance clinically is usually of only slight value. On the other hand, a deformity of the pupil serves in a large number of cases to indicate syphilitic infection or to suggest those diseases usually called parasyphilitic. The Argyll-Robertson pupil he has observed only in syphilitics, general paralytics and tabetics. Among these 80 syphilitic men there were not more than one-quarter whose nervous systems had suffered either by the true syphilitic or the parasyphilitic affections. These results confirm in general terms the opinions of Babinski to the effect that there is some relation between syphilis and the Argyll-Robertson pupil and deformity of the pupils, especially in the presence of tabes, general paralysis, or syphilis itself.

BOUCHARD, at the Academy of Sciences July 15, 1902, read a paper on the local treatment of isolated rheumatism. He considered the essential advantages of treating locally, if possible, all the local manifestations of general diseases, and in fact, of local diseases also. Among others he had been making observations upon local rheumatism; he had injected beneath the skin salicylate of soda in a solution of 5 per cent. when the cellular tissue alone was slightly affected, or when there was a local arthritis or neuritis. He has found such injection comparatively painless, and the dose may be made, according to the extent of the lesion, from one to four injections of one to two c.c. each. Occasionallv a single injection will be sufficient to bring about a cure, but it is necessary to commence the injections again if the first fails by the end of the second or third day. If there are several local sites of the disease he takes each one in turn, and if there are many he treats several at one sitting. In general, he stated that though these local injections cure the disease at the point of application, they do not appear to have any affect whatever on the systemic course and evidences of the attack. It possesses one advantage probably, and that is, under certain circumstances other parts of the economy are spared by the use of the medicine at the seat of the disease.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Seventieth Annual Meeting, Held at Manchester, July 29, 30, 31, Aug. 1, 1902.

(Concluded from page 324.)

Carcinoma in Women.—Professor William Japp Sinclair selected Carcinoma in Women, chiefly from its clinical aspects, as the subject of his Address on Obstetrics. The greater comparative frequency of occurrence of cancer of the generative organs in women than in men was pointed out, as a possible clew to the etiology of carcinoma in general. We search in vain through the recent manuals of gynecology and even of pathology and the records of pathological investigation, for any hint of progress in the evolution of an etiology of malignant disease of the internal sexual organs of women. Of histology there is enough and to spare, but of pathology in the narrower sense there is little to arrest attention, much less to satisfy; and there is absolutely nothing to indicate an advance from the position of a former generation of pathologists. The nomenclature is new—the thoughts and principles are old. There would, in fact, be a certain amount of truth in the allegation that the diligent pursuit of the histology of malignant growths and other tumors has distracted the attention, the activities, and the energy, to say nothing of the intellectual force, which might have led to a true pathology of cancer of the uterus by fixing the attention upon structure, growth and extension in relation to clinical phenomena. We have heard too much of cancer as neoplasm, too little of it as a disease. If, now, we set aside all considerations of the etiology and pathology of cancer of the uterus and keep in mind only the clinical aspects of the disease, we see much ground for congratulations on the achievements of the last quarter of a century. The clinical work has been wholly surgical. What is not surgical is futile—it is hardly knowledge.

Results of Surgical Treatment.—Vaginal hysterectomy, when the disease is confined to the uterus, is not now more dangerous than an ordinary ovariotomy. The mortality, which at one time was 30 per cent., has now sunk to 3 or 5 or 7 per cent., according to the extent of the disease and the concomitant complications or derangements of health.

In recent years there has been a wave of depression passing over the gynecological world on account of the unfavorable remote results of vaginal hysterectomy for cancer, and the most optimistic will admit that there has not been much ground for satisfaction. At a recent Congress of American gynecologists one of the members said: "There are some men who claim for total extirpation of the uterus the happiest results. . . . Other men have looked upon the matter with utter hopelessness. . . . I am sorry to say that I have brought myself among the latter class from bitter experience."

But so far from the pessimistic view being the true one, the results obtained by many of the best-known operators continue to improve and to give the greatest encouragement to continued efforts in the future. They are obtaining better immediate results, and the number of "cures" increases—that is, the percentage of immunity for at least five years after operation becomes greater. The percentage of cases operable when first seen also increases, because the patients come earlier for treatment, and improvements in technic have extended the indications. The proof of all this lies in the statistics of carefully-reported work done under circumstances in which the sources of error are reduced to the minimum.

The most remarkable figures of all are those given by Schuchardt as the results of the paravaginal operation. The best results before were those of Leopold in Dresden, who with an operability of 20.4 per cent. had 50 per cent. of conventional "cures." Schuchardt raised the operability to 61 per cent. and had conventional cures to the extent of 40 per cent. In easy cases he had the astonishing results of 80 per cent. of cures.

Abuse of Operative Methods.—One of the results of the depression arising from the recognition of the unfavorable remote results of vaginal hysterectomy has been a rush, especially in Germany, to the extreme verge of the practical in dissecting out not only the internal sexual organs but the whole of the lymphatics and cellular tissue of the pelvis. This has been declared to be justified by the belief that better remote results would be obtained than by vaginal hysterectomy. From a careful and laborious attempt to keep up with the record of proceedings, I have no hesitation in saying that a large portion of the extended radical abdominal hysterectomies for cancer are murderous vivisections, which nothing hitherto advanced in their support appears to palliate, much less to justify. Most of the cases recorded have been too far advanced for any operation, however radical. I believe the presently existing pessimism is not justified by the facts, that there is much reason for encouragement to greater efforts in the future, and that our hopes must rest on early vaginal operation, not on the so-called extended radical abdominal sections.

Increase.—Among the preliminary considerations which call for attention comes the question: Is cancer of the uterus on the increase? My own firm conviction for a long time has been that it is not, in spite of all allegations to the contrary. Cancer of the cervix is a different disease from cancer of the body, and is a morbus miseriæ like osteomalacia, leprosy, and pellagra; it is bound to decrease as the social condition, the physical well-being, the freedom from worries, and the consequent comparative happiness of the people improve. Cancer of the cervix uteri occurs almost exclusively among the poor, the chronically overworked and underfed, among prolific poor, harassed, worried, drained, reposeless women, that fissures of the cervix, neglected lacerations, tissue changes in the cervix, from flexions, irritations from venereal diseases, remnants of puerperal sepsis affecting the cervix, I have myself no doubt whatever. There is no time to argue the question, but each expression here used embodies an opinion, and has the foundations of a thesis which I am prepared to maintain and defend. But we cannot afford to remain supine and inactive while the process of evolution is going on. We have seen disease eradicated in this country by social legislation; for example, mollities ossium; but no legislation we can foresee will relieve our fellow countrywomen from the physical effects and the cares of large families, or save them from the consequences of their own negligence and from marital cruelty and selfish indulgences.

Importance of Clinical Observations.—It is my firm conviction that the secret of cancer in general will be discovered, if ever, by the study of carcinoma of the uterus, and that the means will be exact clinical observation, followed, perhaps, and corroborated by, experimental research. The microtome and the cultivation tube, and experimental implantation, have had their day; they need not cease to be, but they should find their proper place in our system of research. We may get at the causes of malignant disease, as far as we understand the causes of things, by exact clinical observation; but the specific remedy or the system of therapeutics will come, in all probability, as a stroke of empiricism from an individual working for the sake of knowledge. It might be argued that the pathology and serum treatment of tuberculous disease and diphtheria are examples to the contrary, but there appears to be hardly any analogy between the genuinely infectious diseases and the phenomena of cancer.

Cancer is infectious to the individual already affected with cancer, but to no other. The phenomena of rapid recurrence in the cicatrix after operation, owing to contact of the fresh wound with cancerous matter, points to an early cancerous condition of the system, an entirely different matter from the late cancerous cachexia.

Application of Logical Methods.—If we are ever to arrive at the causation of carcinoma of the uterus we must reach it by the rigid application of logical methods of induction to clinical work. We are already in possession of certain facts established clinically with regard to cancer of the body and cancer of the cervix, and the extent to which they are dissimilar. We might begin with carcinoma of the cervix. It is a diseased condition, with antecedents and characteristics almost entirely its own. Its characters fit it specially for clinical observation and the application of logical methods of induction.

Conclusions.—Running through all I have said has been an effort to attract attention to the dignity and the effectiveness of exact scientific clinical methods of observation. To do so it seemed necessary to contrast the futility of much of the labors of the past in order to establish the etiology and true pathology of cancer. All honest and enlightened human effort should be welcomed; I depreciate none. But chiefly is my hope fixed on the fact that in such research as I have been suggesting every member of the medical profession engaged in general practice could co-operate in genuinely scientific work with those whose daily occupation was of a special character. The work of both sets of workers would be complementary. The specialists have more time as a rule, and naturally have the particular disease more in their minds. The medical practitioner knows most about the history and environment of the individual, and can obtain relevant information from which the hospital physician is excluded.

It is my earnest hope and desire that some of our younger men with more energy, better opportunity, starting on a higher level of knowledge, will professedly take up this great enterprise and see whether by calm, industrious, and enlightened clinical observation, alone or collectively, they can find out for mankind the cause and the remedy for this mysterious and dreadful malady.

Smallpox and Vaccination.—Dr. E. W. Hope of Liverpool presented a paper upon this subject and particularly dwelt upon its practical phases. Inasmuch as vaccination is a preventive measure, designed to protect the public health, there is, he said, no reason why its administration should not be incumbent upon the body which is responsible for the administration of all preventive measures designed to protect the public health. In the hands of such officers it could be more quickly and systematically administered. With regard to the performance of the operation itself there can be no doubt that the work of the public vaccinators is on the whole more efficient than the work of private vaccinators. Another important point for consideration is the question of the supply of lymph. The fact that lymph degenerates and becomes inert in time is sufficient reason for the establishment in populous centers of depots for the preparation of this lymph under supervision and control of the local government board. Parliamentary provision for revaccination is absolutely essential. This is best done during the twelfth year before the child leaves the elementary.

Doctors Seaton and Edwardes confirmed the statements made by Dr. Hope and cited additional statistics to prove the importance of revaccination.

Inherited Immunity.—Dr. John Gornall reminded the audience that all people were in some measure susceptible to smallpox and immunity was acquired or transmitted from parents. Such immunity was the cause of subsidence in the disease during intervals between epidemics. He explained the difficulty encountered in vaccinating the children of those who had been revaccinated.

Absolute Immunity.—Dr. Nash said there was no such thing as absolute immunity but fortunately recent vaccination furnished a very high relative degree of immunity. That the vaccination be efficiently done with fresh and potent virus in every case is of prime importance.

German Vaccination Law.—An efficient act was adopted by the German Government in 1874 by which it was provided that every child should be vaccinated during the calendar year succeeding the year of its birth, and every child in attendance upon a public or private school within the year in which the pupil has passed his or her twelfth year. The section of Public Medicine unanimously passed a resolution favoring revaccination at the age of twelve years.

Functional Paralysis.—A discussion on the Differential Diagnosis of Functional and Organic Paralysis was opened by Dr. Thomas Buzzard. Without attempting to define the word "functional," he said that he would apply it to cases of paralysis which simulated more or less closely those arising from structural alterations of recognized character, within or of the nervous system, without being dependent upon any that the most advanced means of investigation enabled them to distinguish; also that the term should be limited to cases of paralysis of a kind which it would be possible for at least some healthy persons to produce by voluntary stimulation. Functional paralysis could sometimes

—though by no means always—be removed rapidly or suddenly as a result of persuasion or physical or moral shock. Many symptoms were enumerated which were conclusive as to the existence of organic disease, but there were probably none which, unsupported, could be relied upon to establish a diagnosis of functional paralysis. Functional hemiplegia was rarely preceded by anything resembling apoplectic seizure; it was most commonly of somewhat gradual onset, and was principally differentiated by its failure to present that gradual passage from flaccidity to contracture which was characteristic of the organic form. It was prone to be associated with an amount of anesthesia far exceeding that usually observed in organic hemiplegia, except of that form in which there was lesion of the sensory tract in the internal capsule. The characteristic hysterical gait had been well described by Todd, to whom they owed also the observation that hysterical hemiplegia rarely, if ever, attacked the face. Babinski's "flexion combinée de la cuisse et du tronc" was an important test. In organic hemiplegia an effort to sit up in bed without the aid of the arms caused the heel of the affected side to be lifted, which did not happen in the functional form. Although a process of slow and gradual contracture was not prone to occur in the course of functional hemiplegia a strong contracture—without previous flaccidity—might take place, often suddenly, and present a very strong prima facie resemblance to the result of an organic lesion. But in true hemiplegic contracture of long standing he had pointed out that the whole arm could not be passively extended at one moment, but in the functional form the arm, hand, and fingers could all, by an effort, be brought into one plane. Inequality of the deep reflexes on the two sides could not be absolutely relied on to prove that the hemiplegia was of organic origin; and the same obtained with regard to ankle clonus, which was sometimes, though very rarely in the functional form, indistinguishable from that characterizing organic lesion. The absence of or difficulty in eliciting the plantar reflex in functional paralysis described by him 20 years ago was of great service as a negative sign in differentiating functional from organic paralysis. The "toe phenomenon" described by Babinski in 1896 was probably of still more importance, since it gave positive evidence of organic disturbance. The differentiating of monoplegia of functional origin was discussed, and it was shown that its differentiation might sometimes present insurmountable difficulty. Paraplegia rarely presented any serious difficulty, especially because of the aid to diagnosis afforded by the Babinski toe phenomenon and the absence of plantar reflex. The comparatively moderate and often transitory paralysis of a limb or limbs in insular sclerosis was often erroneously regarded as of functional character. He combated the idea held by some that these attacks of localized paralysis were at first hysterical and eventuated in organic change, and expressed the opinion that it was the attack of structural disease in the central nervous system which incidentally caused also hysterical symptoms. Not only physical shock, but the shock of structural disease, was prone to induce along with its immediately resulting symptoms others of a functional and often transitory character. In conclusion, he pleaded for the medical student receiving accurate instruction and study of the Babinski toe phenomenon as a most important means of differentiating organic from functional paralysis.

Sir William Broadbent, after alluding to the difficulty of differential diagnosis of the paralysis in early insulated sclerosis, mentioned a series of four cases of functional paraplegia all due to suggestion by the same person. Extraordinary vascular changes shown in the color and volume of limbs affected occurred with functional paralysis. Dr. Judson Bury emphasized the absence of any absolutely certain distinctive test, and showed that the term functional was in itself objectionable, as the unrecognized structural changes were probably identical with the early changes of organic paralysis. Dr. E. S. Reynolds alluded to the special difficulty of the differential diagnosis in cases of railway injury. Ankle clonus, if continued by Babinski's sign, he considered a certain test. Gait with uncovered feet gave valuable information, and the presence or absence of contraction of the platysma on the paralysed side was also of value in diagnosis. Dr. T. D. Savill alluded to the distribution of the anesthesia, the changes in the special senses, the scattered arrangement of the physical signs, and their variability in functional disease; also to the vasomotor changes which suggested a vascular origin for functional paralysis. Dr. Harry Campbell insisted on there being structural lesions underlying functional paralysis, although they were not at present discoverable; and to the impossibility of drawing a clear line of division between functional and organic manifestations. Dr. F. W. Mott advocated the employment of the cholin method of differentiation; if cholin were present in excess in the blood it indicated grave destruction of nerve tissue. Dr. David Drummond insisted that although no signs were infallible, yet several were for practical purposes unequivocal.

Clinical Apparatus.—Dr. James Mackenzie gave a demonstration on his clinical polygraph and phlebograph by which simultaneous tracings of the heart, arteries, veins, and liver, and other pulsating parts could be taken and synchronized. A system of tambour, lever, and elastic tubes connected with a metal cap fitting on the pulsating surface was attached to a Dudgeon's sphygmograph, used as a recording apparatus. His communication was discussed by Dr. Drummond and Dr. Dreschfeld (the President) who had found the apparatus practically useful in hospital work.

Tuberculosis of the Testis.—A discussion on the treatment of tuberculous disease of the testis, vesiculæ seminales, prostate, and bladder was opened by Sir Thomas Myles. The question of the primary seat of the disease was of first importance. Tuberculous disease of the prostate and seminal vesicles was almost always secondary to disease in the testicle, that of the bladder to disease of the kidney. With regard to disease of the testis, there were two schools of opinion; those belonging to the one advised removal of the whole organ when the disease was recognized, those belonging to the other believed that a satisfactory result could be obtained in some cases by removal of disease foci. A localized nodule did not justify complete orchidectomy; other cases presented themselves too late for such treatment. When infection was general, no operation should be undertaken; but even in such an advanced condition as suppuration in a tuberculous testicle with disease of the vesicles and prostate, removal of the testicle appeared to improve the condition and increase the powers of resistance. Local treatment of tuberculous disease of the bladder he had found disappointing.

Professor Senn (Chicago) considered the examination of the urine in all cases of suspected genito-urinary tuberculosis of much importance. He had found iodoform valuable in vesical tuberculosis; he considered that a bilateral condition contraindicated operation; chloride of iodine he had also found of value for topical treatment. Professor Valentine (New York) considered that gonorrhea played an important part in rendering the genital organs vulnerable to tuberculosis.

Pancreatitis.—Mr. Edmund Owen read a paper on two cases of chronic pancreatitis treated by laparotomy, with complete recovery. An exploratory operation was called for in all cases of supposed malignant growth of the pancreas. Dr. Griffiths related a case of apparent pancreatitis cured by drainage of the gall-bladder. Sir Thomas Myles had had a similar case where he had removed stones from the gall-bladder, followed by disappearance of the pancreatitis.

Extirpation of the Prostate.—Mr. P. J. Freyer read a paper on total extirpation of the prostate for radical cure of enlargement of that organ. He described a further series of seven cases of total extirpation of the prostate, and exhibited all his specimens, 21 in number, derived from the cases in which he had performed the operation. He had had one death in the last seven cases, occurring suddenly from heart failure, nine days after operation. He divided the cases into three classes: those in which the lateral lobes of the gland were entirely separate, those in which they were attached by an inferior commissure, and those in which the urethra was entirely enclosed by prostatic tissue. In the first two cases the urethra was left intact, in the last that part surrounded by the glandular tissue was removed. He described his method of operating. Professor Alexander (New York) read his paper on the surgical anatomy of the prostate. The true capsule of the prostate was derived from the pelvic fascia, within this was the sheath described by Thompson; the latter was removed by Mr. Freyer and other surgeons, not the former. The lateral lobes were responsible for urethral obstruction. The so-called middle lobe was merely an outgrowth from one or other of these. That part of the gland lying behind the urethra and in front of the seminal ducts was pathologically of much importance; it was here that cancer and other diseases were most frequently located. He believed that in the great majority of cases the perineal route was the best route for attacking an enlarged prostate. Dr. Parker Syms agreed with Dr. Alexander that, on the principle of attacking all growths through the most direct route, the perineal was the better route of the two. He used a special instrument for bringing the prostate down to the perineum to facilitate enucleation. In all but one, out of 21 cases, the whole prostate had been removed by this method. Mr. Reginald Harrison showed specimens from seven cases of suprapubic prostatectomy. He thought, however, that there was much to be said in favor of the perineal route. Sir William Macewen had found it necessary in some cases where he had enucleated masses from the prostate by McGill's method to make subsequently a perineal incision for drainage; he was inclined to think that this was the best route. He agreed that the lateral lobes formed the obstruction; in some cases he had removed these without opening the urethra. Dr. Valentine (New York) read an abstract of his paper on the diagnosis of urethral disease, describing his methods of urethral examination. Dr. Dalziel (Glasgow), in a paper on gastro-enterostomy for pyloric obstruction, brought forward a group of 30 operations undertaken for the relief of apparently incurable dyspepsia; many of the cases had evidence of marked pyloric obstruction. Dr. Edebohls (New York) read a paper on renal decapsulation *v.* nephrotomy. He had introduced the operation for the treatment of chronic Bright's disease. He had treated 40 cases in this way, and the results up to the present had been very satisfactory, but the ultimate result in the majority was still to be seen.

Ectopic Gestation.—Dr. G. T. Harrison of New York read a paper on the Etiology, Diagnosis, and Treatment of Ectopic Gestation. He acknowledged that the occurrence of ovarian pregnancy had been demonstrated, but confined his remarks to pregnancy in the Fallopian tubes. The etiology was still obscure, and the formation of a decidua in the tube by no means proved. Rupture was not the usual termination, the embryo often being destroyed before there was any reason for rupture to occur. The diagnosis after rupture was not difficult, and in many cases might be made earlier. In operating, he preferred the abdominal way, and particularly in patients who had lost much blood; ether rather than chloroform as an anesthetic. Professor Cameron insisted on the advantages of early operation and the inaccuracy of descriptions in textbooks. Dr. Herbert Spencer said the proportion of ruptured cases to those of tubal hemorrhage and abortion was small; the danger of delaying operation in the later months when the child was alive was very great. Professor Byers concurred that ovarian pregnancy must be admitted; he personally preferred the abdominal operation, the performance of which had been greatly facilitated by the Trendelenburg position; but excellent results had been obtained by those who preferred and were more practised in the vaginal ways. Dr. Donald said that in many cases there was no clear history of a missed period. If the embryo were dead, expectant treatment might be justified; if otherwise, operation was indicated.

Prolapsus Uteri.—A discussion on the Operative Treatment of Prolapsus Uteri was opened by Dr. Berry Hart, who attributed the comparative neglect of surgical treatment of this affection to the complicated anatomical relations of the parts prolapsed, the serious amount of displacement in marked cases, the disheartening frequency of recurrence, and the difficulty in operating thoroughly and yet, as was nearly always necessary, leaving a patent vagina. He gave a masterly demonstration, illustrated by numerous drawings and casts, of the anatomical relations in advanced prolapsus uteri compared with those of an undisturbed pelvic floor, and pointed out where our knowledge was defective. He then described the various operative measures adapted to moderate degrees of prolapse, more particularly Westermark's lateral elytrorrhaphy.

Functional Neuroses and Insanity.—Professor Clifford Allbutt read a paper on the Relation of Functional Neurosis to Insanity. After a brief exposition of the organization of the nervous system viewed as a series of centers superposed on one another in order of development, an attempt was made to explain and describe neurasthenia as a condition of the central nervous system characterized by a lowering of the potential of reserve energy of the nervous centers, as shown by readily evoked manifestations of fatigue with little power of recuperation during rest. The condition was not like normal fatigue or exhaustion which might be completely abolished by rest or sleep, but there was probably a special morbid condition of the nerve centers of congenital origin and lasting through life, which underlay neurasthenia. True neurasthenia seldom passed into insanity; it ran its own course. The neurasthenic proper had no tendency to hypochondriacal obsessions or to the development of delusions. Hysteria was a different condition from neurasthenia; it did not imply exhaustion of the nerve centers such as was present in neurasthenia, but was due to irregular activity of the higher inhibitory centers with free manifestations of certain emotions and (in hysteria major) the development of local anesthesias, paralyses, and the like. Hypochondriasis came nearer to insanity than did neurasthenia or hysteria minor. The hypochondriac very rarely showed suicidal tendencies, and, unlike the neurasthenic, who was temporarily benefited by rest and isolation, the hypochondriac grew no better.

Syphilis and Insanity.—Dr. F. W. Mott opened a discussion on Syphilis as a cause of insanity. He said syphilis acted as a powerful poison on various tissues of the body, and particularly on the nervous system. During the secondary stage the continued anemia and toxemia following infection might readily excite insanity in predisposed subjects. Syphilitic brain disease (meningitis, gummata, and arteritis) in its worst and most intractable forms usually occurred within the first four years after infection. The most common and dangerous sequel of syphilis, however, in civilized man, was general paralysis of the insane, and as Krafft-Ebing expressed it "syphilization and civilization" were the two chief causes. The main arguments which favored the view that syphilis was the cause of general paralysis were as follows: General paralysis was unknown in countries or communities where syphilis was unknown; it was rare in the rural districts of Ireland and Sweden, and among priests, Quakers, and women of the upper classes, and careful investigation showed that 70 to 80 per cent. of general paralysis had had previous syphilis. General paralysis was related to tabes dorsalis, which was itself a para-syphilitic disease.

Intestinal Secretion.—Dr. J. S. Edkins opened an interesting discussion on Intestinal Secretion and the Action of Drugs thereon. The evidence of any true secretion occurring at all was very slight. It had been claimed that cutting all the nerves to an isolated loop of intestine produced a great increase of secretion, but it was practically impossible to do this without injuring the blood supply, and hence the fluid was in all probability of the nature of inflammatory exudation. In Dr. Edkins's own hands solutions of magnesium sulphate caused an increase, but this was accompanied by denudation of the epithelial covering of the villi, with escape of large numbers of leucocytes, followed by evidences of mitosis in the gland cells. It could not be taken as definitely established that any secretion of intestinal juice into the lumen of the bowel occurred. The functions of the mucous membrane were absorption, the transformation of peptone, maltose, cane sugar, and possibly fatty acids during absorption; the production of "secretin," which powerfully influenced the secretion of pancreatic juice and passed directly from the cell into the blood vessels; the formation of enterokinase, which increased the activity of the pancreatic ferments.

Bacteriological Diagnosis.—A discussion was opened by Professor Sims Woodhead on the Place of Bacteriological Diagnosis in Medicine, with special reference to Diphtheria. He insisted on the importance of co-operation between the clinician and the bacteriologist, and thought that if this was satisfactory the limit of error was reduced to about 5 per cent. He referred to the difficulties accompanying certain classes of case, notably those of nurses attendant upon cases of diphtheria and children suffering from laryngeal and tracheal affection. In the former class diphtheria bacilli might often be found in spite of the fact that the nurse appeared to be in perfect health, in the latter class, in spite of a certain clinical diagnosis, bacteriological examination might be negative. It was also not infrequently negative in the case of patients from whom swabs were taken *in extremis* or after death, owing to the fact that saprophytic bacteria crowded out the true diphtheria bacilli. With reference to the question of releasing a patient from isolation, he was strongly of opinion that this should not be done until diphtheria bacilli had entirely disappeared from the throat. Energetic disinfection of the throat should be carried out so as to hasten this object. Without disinfection bacilli might persist in the throat for many months, though a very large proportion of cases failed to show them after about eight weeks. He had found that the most virulent cases of all were mixed infections in which staphylococci were present along with diphtheria bacilli. Less severe were those where streptococci and diphtheria bacilli were present. The co-existence of streptococci, together with staphylococci and diphtheria bacilli, did not raise the mortality over that obtaining with mixed infections of staphylococci and bacilli alone.

Enteric Infection.—Professor Firth and Major Horrocks read a paper on the Influence of Soil, Fabrics and Flies in the Dissemination of Enteric Infection. After referring to the unreliability of much previous work owing to insufficient diagnosis of the typhoid bacillus the authors said that they found no evidence that in soils or fabrics the bacilli multiplied, but considered it to assume a vegetative existence. They had found it immaterial whether the soil was watered by rain or sewage, but the question of the amount of moisture present was fundamental. They had recovered the bacilli from as deep as 18 in. whither it had been washed by flooding the soil. In dry soil like dust the bacilli could easily be recovered up to the 25th day and could contaminate exposed agar plates at a distance, being conveyed to them by the wind. They also found that the infection was readily carried by house flies.

Spina Bifida.—Mr. Harold J. Stiles, F.R.C.S.E., read a paper on the Surgery of those Affections of the Nervous System which occurred more especially in Children. Mr. Styles gave the reasons which guided him in the selection of cases for operation in spina bifida and led him to believe in excision of the sac as being the most suitable form of treatment. He had found that the injection of Morton's fluid did not give favorable results. Operation was contraindicated when in addition to the spina bifida the ventricles were already dilated by cerebro-spinal fluid. He discussed the complications such as paralysis and ulceration, and such causes of bad results as sepsis and poisoning by antiseptics. He referred to cranial meningoceles and congenital internal hydrocephalus, and summarized the various procedures adopted for the relief of those conditions which had not so far been attended by satisfactory results. Mr. Stiles described a new form of procedure which he was now trying, which consisted in drainage of the cerebro-spinal fluid under the erector spinæ muscle into the peritoneal cavity. He referred to the prognosis of cases of craniectomy for the condition of microcephaly, and in tuberculous and non-tuberculous posterior basal meningitis and in epilepsy. He discussed the surgical procedure in cases of Pott's disease complicated by paraplegia, and emphasized the necessity for prolonged rest in the recumbent posture in these cases.

Respiratory Exercises.—A paper was read by Mr. Arbuthnot Lane on the Value of Respiratory Exercises in the Naso-Pharyngeal Lesions in Childhood. Mr. Lane referred to the part normally played by the pressure of the air in its passage through the naso-pharynx in determining the development of the bones of the face, and pointed out the various deformities and general loss of health that occurred in conjunction with any lengthy interference with this pressure. He referred to the narrowing of the alveolar arch, increase of height in the palate, diminution in the breadth and height of the nasal cavities, lateral compression of the anterior nares, habitually open mouth, decay of temporary teeth and inflammatory condition of the lymphatic tissue of the upper part of the pharynx called adenoids, as well as to the deafness and condition of "open bite" and other deformities of the lower and upper jaws which followed. Deformities of the face could be better seen in girls than in boys, boys obtaining for themselves more readily the kinds of foods and exercise that were beneficial to the condition. It was more important to attend to the physique of growing children than to expend energy on what was called education. Dr. Ashby referred to such conditions as deformities of the chest, softening of the ribs, obstruction in the trachea and chronic bronchitis as the result of the existence of adenoids. Sir Felix Semon asked Mr. Lane how respiratory exercises diminished organic hypertrophy of gland tissue; in his paper Mr. Lane had not referred to this part of the question. Dr. Scanes Spicer spoke of the value of exercises in preventing the formation of adenoids. He described some experiments and showed some tracings showing the pressure of air in the nasopharynx when there was obstruction and when there was not. Dr. McBride expressed himself as disappointed with the small amount of combative matter in the paper in comparison with that expressed by Mr. Lane elsewhere. He disapproved of Mr. Lane's paper. Dr. Baginsky asked what exercises could with advantage be given to infants of a few weeks old; adenoids were undoubtedly present in some of these cases. Mr. Mayo Collier could not believe that Mr. Lane had ever said that solid growths could be cured without operation. Dr. Campbell referred to the diet of starchy foods commonly given to children which predisposed them to catarrh, and led to an undeveloped condition of the masticatory muscles with the consequent deformity. Mr. Lane made no reply to the questions raised by various speakers. The value of physical exercises was hardly alluded to throughout the debate, which lacked the calm and impartial tone necessary for the elucidation of scientific problems. The discussion was in consequence disappointing, and fell below the level of those usually held.

Arsenic.—Professor Stockman selected for discussion the Therapeutic Value of Arsenic, and the justification of its continued use in view of recent knowledge concerning its toxic action. The polynuclear leucocytes had apparently the power of fixing arsenic in some relatively innocuous form; this was to be concluded from the fact that much larger doses of arsenic could be given by intraperitoneal injection than by intravascular injection. In the author's opinion the advantage of arsenic alone in anemia was not supported by clinical evidence, nor was there from experimental data any justification for its use. Arsenic, however, with iron was of great value in many forms of anemia. Dr. Stockman then described his own researches on the action of arsenic upon the bone marrow, including the complete disappearance of all leucoplastic cells, erythrocytes, and fat cells, and their replacement by a hyaline substance resembling mucin. To this he attributed the fatal anemia. Dr. Pope then read a paper on Arsenic in the Treatment of Chorea. The way arsenic was given was important; he began with two and a half minim doses, and when increased was always given in a dilute form. Dr. Wild gave the result of his treatment, mostly in cases of skin disease, by arsenic for the last 10 years. With regard to the use of cacodylic compounds, he was of the opinion from his experience that these substances did not act as arsenical compounds therapeutically. Professor Shoemaker (Philadelphia) drew attention to the unfortunate manner of prescribing arsenic in the United States in the form of named solutions, such as those of Fowler, Pearson, or Donovan; and to this practice he attributed some of the cases of poisoning. Prescriptions in this form were frequently passed from the patient to others, and the solution used until severe toxic effects were produced. Dr. McWalter (Dublin) held that arsenic was almost useless in chlorosis unless combined with iron; but was one of the few drugs of value in the treatment of pernicious anemia. The use of arsenic in pill form was entirely to be deprecated. Dr. Luff gave some of the results of his investigations upon the beer-poisoning epidemic, emphasizing the fact that there appeared to be no quantitative relationship between the symptoms produced and the dose taken. He would prefer to regard the cases of arsenical poisoning as instances of want of tolerance to arsenic, and pointed out in this connection the importance of idiosyncrasy. Professor Tunnicliffe referred to the difference in their toxic power between arsenates and arsenites. Stating that this had been clearly established, yet nevertheless the pharmacopeial dose of arsenate and arsenite of sodium remained the same. Reference was made to the affinity of nucleoproteids for arsenic, and stated that the arsenic which was stored in the liver was in combination with nucleoproteids. The question of idiosyncrasy was discussed. He had found the action of selenium practically identical with that of arsenic. Dr. E. S. Reynolds (Manchester) drew attention to the fact that in the recent epidemic of arsenical poisoning only a very limited number of the people who were in the habit of drinking the beer containing the arsenic showed marked toxic effects, considering the enormous quantity of such beer consumed. He believed that tuberculous subjects were more liable to develop toxic symptoms with large doses of arsenic than others of sound constitution. Papers were subsequently read by Professor Liebreich on the Therapeutic Value of Cantharidin, by Professor Marshall upon the Pharmacological Action of Mannitol Pentanitrate, and by Mr. Colin Campbell upon the Materia Medica of the Intratracheal Treatment of Pulmonary Diseases. Mr. Colin Campbell showed his method of intratracheal treatment in pulmonary disease.

The Treatment of Diphtheria.—The Local and General Treatment of Diphtheria was introduced by the President, Dr. Tirard. The speaker said that in his opinion in view of the various reports upon this subject there could now be only one treatment for diphtheria, and that was the antitoxin treatment. He mentioned, however, that there might be sentimental objections to this treatment, and read an amusing letter which had been addressed to himself some time ago by an anonymous and aggrieved antivivisectionist. In the opinion of the speaker, the main points for discussion were (1) whether any remedy in diphtheria gave the same sense of security and hope as did antitoxin, whether the ill effects attributed to the antitoxin were not really sequelæ of the disease, and whether after the use of antitoxin greater security in laryngeal cases was afforded by tracheotomy or intubation. The address gave rise to an animated discussion. Professor Wild said one of the difficulties in the use of antitoxin consisted in the inaccuracies of the standardization. He regarded antitoxin as they had it now as only a temporary remedy, and looked forward to the time when they would be able to isolate the active principle, which would admit of much more accurate dosage. Dr. MacWalter pointed out some apparent fallacies in the statistics of the antitoxin treatment. Dr. Hopkinson supported strongly the antitoxin treatment, and raised the question of the advantage of preventive antitoxin inoculation in the attendants upon virulent diphtheria cases.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held May 26, 1902.

The President, Frank Van Fleet, M.D., in the Chair.

The scientific business of the evening was opened with a paper by Dr. Thomas J. Hillis on Medical Etiquette at the Dispensary Clinics.

Philanthropy versus Commercialism.—Dr. Hillis said that there is a great pretense of charity towards the poor and of supposed philanthropy in our hospitals and dispensaries, though an atmosphere of commercialism in these institutions is a constant feature. One of the grievances that the majority of the medical profession has with regard to the dispensaries as at present managed is that numbers of people are allowed to apply for treatment without let or hindrance, who are in no sense entitled, according to law, to the free medical service that should be given only to the poor. Some of this abuse is due to the fact that the dispensaries are used by calculating medical men to divert business to their empty offices. Dr. Hillis described with humorous detail and suggestive truthfulness the fine art of inveigling patients as it is practised by certain dispensary physicians.

The Dispensary and the Poor.—Patients who can pay good fees not infrequently find their way to dispensaries and have very little trouble in securing medical attendance. Practically every medical clinic in the city is under suspicion of fostering this evil. The possibility of such an evil has been recognized by the profession, and a law was passed for its prevention. This law is practically a dead letter on the statute books, because no properly organized effort is made to prevent its infringement. Dispensary physicians somehow do not realize how much of an evil they are inflicting on their brother practitioners, nor how sadly they are pauperizing the rising generation. The fact of the matter is that large clinics are encouraged partly for teaching purposes and partly because the attending physicians at dispensaries hope to increase their private practice by diverting patients from the dispensaries to their offices.

Condemnation of Physicians' Advice and Diagnosis.—Another very serious evil inherent in the present dispensary system is the fact that dispensary physicians only too often condemn unwarrantably the advice of outside physicians and repudiate the diagnosis they may have made. Not infrequently there is absolutely no reason for doing so, and they have only the word of the patient as to what his physician said to him. Often at the time when the practitioner saw the patient, the disease was in inchoate condition and had not developed to such a stage as would make its diagnosis easy. Notwithstanding all the excuses that might be made dispensary physicians not infrequently say severe things that are reported by patients outside of the dispensary and injure their previous medical attendant's reputation. Shrewd and disreputable men often use dispensaries for ignoble purposes. Because of these evils the medical profession may well protest against the present policy of our great city dispensaries

[Dr. Hillis' paper appeared in full in the issue of the MEDICAL NEWS for June 28, 1902.]

Overdrawn Picture of Abuses.—Dr. Thomas F. Manley of New York, in discussing Dr. Hillis' paper, said that undoubtedly there are some abuses in our present dispensary system. The picture of these abuses as made by Dr. Hillis is, however, surely overdrawn. Something may well be said for the other side. Here and there in dispensaries, disreputable physicians are found who make use of their positions for ignoble purposes. As a rule, however, the attendants at dispensaries are men of education and refinement and devote themselves unselfishly to their chosen duty of helping the poor. This is an institutional age, and charity is subserved very well by these medical institutions. The state law for the regulation of the dispensary evil is unfortunately a dead letter, but if its enforcement were properly taken up many of the evils complained of would disappear. Some physicians obtain practices through dispensaries or hospitals, but the conditions for obtaining a practice are very different now from what they were twenty-five years ago, and many of the rising generation are forced into specialism.

Gas Leakage and Public Health.—James C. Bayles, of New York, a mechanical engineer who has been for many years an expert on the subject of gas transportation and gas leakage, read a paper discussing the possible effect upon the air of cities of the amount of gas that leaks out of the mains. He said that it is an extremely important and interesting question, usually not discussed outside of the directors' meetings of gas companies, and then with closed doors. Some of the possible evils of gas leakage if generally known would almost create a panic.

Coal and Water Gas.—Mr. Bayles said that there are two kinds of gas usually supplied for illuminating purposes. The original illuminating gas was made from coal. Its manufacture was accomplished by the distillation in closed retorts of coal rich in hydrocarbon. When thus made only about 7 per cent. of the gas obtained consists of carbon monoxide. This ingredient of gas is the most poisonous substance that enters into the composition of gases distributed for illumination or other domestic purposes. In later times gas companies have come to realize that so-called water gas may be manufactured at a much smaller cost than coal gas. Water gas itself it not illuminative, but burns with a pale blue flame, and is called in the trade blue gas. In order to make it suitable for illumination it is enriched by certain naphtha materials. Pure water gas contains about 45 per cent. of the intensely poisonous material, carbon monoxide. Even after admixture with the naphtha products, water gas contains over 30 per cent. of carbon monoxide. It is this very dangerous material that with one exception is supplied in all the cities of the country for illuminating purposes.

Danger of Water Gas.—It has been suggested that uncarburretted water gas should be supplied to replace other fuel for heating in our cities. This gas is entirely odorless and is an extremely active poison. Besides it is of low specific gravity and it is accordingly very hard to keep it from diffusing through pipes and their joints. It has been proposed to pipe New York City so as to furnish this "blue gas" for fuel. If this proposition were to be carried out the only safe place to live in New York City would, according to Mr. Bayles, be out of it. The gas supplied in New York City for illuminating purposes contains more than 30 per cent. of carbon monoxide and is therefore quite dangerous enough without the possibility of having the undiluted odorless blue gas escaping into our houses. At the present time the only safeguard is the odor that reveals gas leakage almost at once.

Gas Leakage from large Mains.—There is a considerable leakage of gas from all gas mains in our large cities. For each mile of main per annum there is a normal leakage of about 225,000 cubic feet. This is a conservative estimate. The Board of Underwriters in London calculates that about 1,748 million cubic feet are lost every year in London through the mains. This constitutes about 11 per cent. of the total gas supply. In New York it has been calculated that about 2,640 million cubic feet of gas are lost through the mains each year. A better realization of how much this amounts to may be gathered from the fact that it means nearly 10,000,000 of cubic feet every working day.

Destination of Gas.—The interesting question is where does all this gas go to? Beneath asphalted streets and well laid sidewalks there is practically no issue for the gas and it finds its way into the sewers and subways. The so-called sewer gas which has been mythically clad with so many destructive properties is probably always composed mainly of this gas leakage from the mains. The Park Avenue subway explosion, in Mr. Bayles' opinion, was initiated by a gas explosion that took place because of the accumulation of gas from the surrounding soil. Most of the escaped gas, however, finds its way into houses. And some of it gets beyond the cellars and into the sleeping and living rooms and is the cause of many pathological conditions, usually supposed to be due to the wear and tear of city life. An examination of a series of houses in Boston showed that in 87 per cent. gas leakage could be detected.

Serious Conditions.—When illuminating gas first escapes it contains a quantity of naphtha that makes it easy of detection. This naphtha is, however, removed from the gas by filtration through the soil. This leaves it odorless and much more dangerous than before. The naphtha material may remain in patches in the soil, giving the odor of gas when there is really very little gas left. Under impervious pavements gas is always to be found; some years ago in Brooklyn an asphalt pavement that had been down only a few years began to break up in patches. If the whole pavement had deteriorated it would have been concluded that the asphalt was poor; as it was, some definite localizing cause seemed to be at work in causing deterioration in certain areas. Mr. Bayles was one of the set of experts appointed to report on the matter. Drill holes were put down through the bad patches of asphalt and at various depths below the soil the presence of gas could be detected. It was concluded that this gas had caused the deterioration of the asphalt. When bore holes were put down beneath the portion of asphalt that had remained solid, however, gas was also found present here. This vitiated the original conclusion. It seems probable that the naphtha material in the illuminating gas contains powerful solvents that cause the asphalt to deteriorate. Where the gas leak is near the asphalt this naphtha produces its solvent effect. The water gas itself, however, becomes diffused everywhere beneath the asphalt.

Tests for Presence of Gas.—Mr. Bayles has invented an instrument by means of which even very small amounts of water gas in the atmosphere or in soil can be detected. With this instrument the examination of rooms in houses frequently shows the presence of gas where none is suspected. Some time ago Mr. Bayles was asked to examine a house that had been unoccupied for some time and to which the family was about to return. When he came to the cellar he found the plumber's boy engaged on the (to him) amusing occupation of lighting the gas that leaked through the front wall of the house in the cellar. Mr. Bayles suggested that he would prefer to wait for the boy to pursue his amusement until he himself was some distance away from the house. The boy did not see the joke. A little later the master plumber said "Oh, that is nothing! You can do that in every house along this street." The street was one of the thoroughly asphalted streets, with impermeable pavements, so common in better parts of the city.

Dangers of Water Gas Diffusion.—During the summer when cellars are kept thoroughly ventilated there is very little danger from the diffusion of water gas. During the winter, however, when cellars are kept thoroughly closed up, the gas finds its way into the air of the house and undoubtedly has a serious effect upon the health of the inhabitants. As a rule people imagine that those who are overcome by gas must be very inexperienced with regard to the use of this material as an illuminant. Only jays from the country are supposedly liable to the dangers of asphyxiation by gas. Mr. Bayles has had a recent experience, however, that has corrected his own false impression in this matter. While sitting in his office he lighted a gas heater that contains two burners. By accident he failed to light one of the burners, which had immediately above it a flue through which the unburned gas was conducted into the room. Mr. Bayles did not notice the presence of the gas until he fell over as the result of asphyxiation. He was then rescued by friends. He felt himself the veriest "Reuben" after this experience and realizes how easy gas asphyxiation may be accomplished.

Sewer Gas and Water Gas.—The very dangerous gas supposed to exist in sewers and called sewer gas is, in Mr. Bayles' opinion, only a bugbear. Sewer gas is not dangerous because it contains the germs of disease. Careful analysis of the ordinary air in sewers shows that disease germs are not frequently present in it. The air in sewers is a little better in this respect than that of the ordinary church, theater, or home. The dangerous element in sewer gas is the water gas that has leaked from neighboring gas mains. Mr. Bayles used to have considerable dread of sewer gas, but now knows that what he needs to look for is the presence of carbon monoxide. When this is absent there need be no fear of going down into trenches or excavations.

Prevention of Gas Leakage.—The prevention of gas leakage, Mr. Bayles considers, can only come from the companies. It will never come from them until popular sentiment in the matter compels them to lay their pipes in such a manner that the leakage is much more limited than at present. At the present time the gas loss each year costs less than would the interest on the money that would have to be expended in order to make gas leakage impossible. The companies would like to stop the leakage if it could be accomplished in some simple way. As a matter of fact, however, the prevention of it would require a very large expenditure. The dangers from gas leakage to health are constantly on the increase. Public sentiment must be educated, then, to the point where companies will be compelled to look out for the public health in this matter. The recognition of the danger that exists is already an important step in advance.

Clinical Observations on Gas Leakage.—Dr. Samuel Lloyd read a paper in which he gave the details of certain cases of probable gas poisoning from leakage of gas into living rooms. One of the first patients whom he treated for the condition was the female superintendent of a public school. She suffered from severe headache with flashes of light before the eyes, intense tired feeling and grave anemia. Certain other people in the same house had suffered from similar symptoms and the condition was supposed to be due to malaria. Though many remedies were tried while the patient continued to live at this house, none of them were of any benefit. After leaving this boarding house, rapid improvement in health took place. Others suffered and investigation of the house condition showed that the plumbing was badly out of repair.

Acute Symptoms of Gas Poisoning.—Dr. Lloyd's second case was a young man suffering with an irregular temperature that sometimes rose above 103° F.; and on one or two occasions went as high as 105° F. The bowels were regular, there was no rheumatism, the liver and spleen were slightly enlarged, the urine contained a trace of albumin and some casts. Some reddish spots were discovered on the abdomen and typhoid fever was suspected. Specimens of blood were examined, however, and the Widal test could not be obtained. There were no intestinal symptoms and quinine did no good. As the patient did not improve no matter what the treatment, change of air was advised. Immediate, rapid improvement took place as soon as the patient got away from the city. Dr. Lloyd did not think of gas poisoning in this case until another patient came down with similar symptoms in the same house. This patient was the sister of the preceding, and suffered with a daily rise of temperature, a feeling tiredness and malaise for which no drugs did any good. Careful examination of the blood did not reveal the presence of typhoid or malaria. The plumbing of the house was subjected to the smoke test, and in the rooms that had been occupied by the brother and sister the plumbing around the wash basin was found to be seriously defective. After these defects had been repaired the patients enjoyed good health.

Simulated Miliary Tuberculosis.—Some two years ago Dr. Lloyd was asked to see the servant of a well-to-do family. She had come recently from the country and seemed to be suffering from some serious disease. There was a rapid pulse, lassitude, loss of appetite and weight and a recurrent febrile temperature. There were no definite signs in the lungs, but emaciation was so rapid that a suspicion of the existence of miliary tuberculosis was aroused. It was advised that the girl should return to the country and there she began to improve at once. In a few months she was entirely well. Dr. Lloyd did not think of this case as having any relationship to possible gas poisoning until another servant in the same house who had recently come from the country also began to suffer from similar symptoms; she was sent home to the country and became perfectly well. Then the employer began to suffer from severe headache, malaise, loss of appetite and a temperature that occasionally rose to 104° F. Then the family was advised to move from its quarters and since then there have been no cases of similar symptoms.

A Physician's Family and Possible Gas Poisoning.—Dr. Lloyd has a friend who is a member of the County Medical Society who has had a series of illnesses in his family during the past winter. The children were ill with symptoms for which no good reason could be found and the physician and his wife were each compelled on several occasions to keep to their beds for days and even weeks because of obscure febrile conditions. Dr. Lloyd thinks, in the light of other cases, that these ailments were either directly due to gas poisoning, because of the escape of sewer gas, or were the result of the lowering of resistive vitality leaving the system open to invasion by infectious material.

Buildings of Public Resort.—Percy Stewart, the Commissioner of Buildings in New York City, said that what Mr. Bayles has brought forward with regard to the escape of gas is extremely important for the Building Commission. Places of public resort, such as theaters, churches, meeting halls and the like, must be protected not only from possible danger from fire because of gas leakage, but must also be made free from the possible danger of being poisonous elements in the lives of people who gather in them. This matter shall be taken up seriously and the gas company will be called to account for the danger they are in many ways inflicting on the community.

Fire Dangers.—Mr. Stoll, of the Board of Fire Underwriters, said that the insurance men have recognized for years the dangers that exist from the immense gas leakage that is known to occur from the mains of large cities. While the underwriters have realized the increased danger of fire from this source they have been unable to cope with it or even to lessen it because the gas companies are so intrenched that legislatures can not be brought to enact measures that will properly regulate the abuse. If the Board of Fire Underwriters can obtain the hearty cooperation of the medical profession, then there is no doubt that a great deal can be accomplished in obliterating the present evil. It is something to have the matter brought so prominently before the public and to have the physicians of the country realize how much danger to human life and health there may be in this question of gas leakage and the problem of its regulation.

Quality, not Quantity, of Gas Recognizable.—Mr. Bayles said in closing the discussion that his invention for the recognition of water gas was a qualitative and not a quantitative test. To have water gas present in the air at all constitutes a serious danger. To be able to recognize it even in minute quantities is very desirable, because if even as much as one per cent. of the gas gets into the air that human beings breathe, it begins to have serious effects. So far Mr. Bayles has had no difficulty in the detection of the presence of water gas, and the test method he suggests is eminently available even for ordinary use.

Physicians and Public Hygiene.—Dr. Lloyd, in closing the discussion, said that this question of the avoidance of gas poisoning in our homes in New York is an important practical problem that physicians should bear in mind and the lessons of which should be made available for patients. All physicians should recommend to patients with any tendencies to anemia the desirability of living in houses where all possibility of poisoning from sewer gas is out of the question.

Smallpox and Vaccination.—Dr. Lloyd, as the Chairman of the Committee on Hygiene of the New York County Medical Society, said that cases of smallpox have continued to occur in very appreciable numbers during the past winter. The committee considers it advisable that all the members of the County Medical Society and also all the physicians of the city should recommend that every one to whom they stand in the relation of physician should be vaccinated. The reason for the present epidemic is undoubtedly the presence of a large number of unvaccinated persons in the community. Certain physicians are only half-hearted in their recommendation of vaccination and have been known to declare people vaccinated on whom vaccination did not take. It is extremely important, too, for the public health of the city that cases of smallpox should be reported as early as possible. Doctors have even been known to conceal cases, thus leaving a large number of people liable to contagion. In this matter no personal motives of false sympathy for wealthy patients should move the physician to neglect his true duty to the community. The committee considers it advisable that the Board of Health should send vaccinators through all the city and, district by district, see that once and for all the inhabitants shall be vaccinated. This would put an end to all danger of smallpox in the city for many years.

Unhealthy Fumes of Storage Batteries.—Dr. Robert T. Morris said that the cars of the 34th street Crosstown Railroad are undoubtedly a source of serious irritation for delicate throats. Scarcely anyone who enters the cars at certain hours is safe from the attack of coughing that occurs through contact with the fumes from the sulphuric acid chargers by which the line is run. In individuals with weak throats or delicate respiratory apparatus this may even be the immediate cause for serious illness. A number of protests have been made to the company, but no action in the matter has been taken. It seems worth while to call the attention of the Committee on Public Hygiene of the New York County Medical Society to this abuse. On motion of Dr. Morris this was referred to the Committee on Hygiene with power to act according to the condition of affairs found and the response of the company in the matter.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Held Tuesday, June 3, 1902.

The President, Wendell Reber, M.D., in the Chair.

Deaths During Operation.—Dr. William H. Good read a paper entitled "Are not Some Deaths During Operation in the Region Supplied by the Trifacial Nerve Due to Inhibition of Respiration and of the

Heart?" in which he reported the histories of four patients, two of whom died. The first was a case of epithelioma of the lip in a nervous, anemic man, which was being treated by massage. During the manipulations incident to the treatment, the heart rate was reduced to 20 per minute, and the respirations, which were feeble, to 12. Treatment was taken up the next day and again caused inhibition. The second patient was a young woman suffering from a badly inflamed gum, due to a carious tooth. After taking a few whiffs of chloroform she was seized with a clonic spasm, followed by complete cessation of breathing and stoppage of the heart action, but was restored by mouth-to-mouth insufflation. The next day she suffered a sudden attack of apnea, without loss of consciousness, as her husband at the beginning of the attack immediately started insufflation. A third case was reported, in which the patient was just becoming conscious after chloroform anesthesia, when the heart and respiration suddenly ceased and death ensued. A case similar to the last was that of a child, who was just regaining consciousness after passing through an operation for naso-pharyngeal adenoids, when he suddenly expired.

The treatment of such conditions by forced distension of the lungs in order to start up the respiratory mechanism and decrease the tones of the cardio-inhibitory centre, as recommended by Ott, was commented upon and thought to be of value, although attention was called to the fact that care must be exercised not to over-inflate the lungs when a bellows is used. This principle was also shown by demonstration upon a rabbit, the application of irritants, such as ether and ammonia, or pinching the nose of the animal, being found to produce marked inhibition of the heart and complete cessation of breathing.

The discussion was opened by Dr. Samuel Wolfe who stated that he felt that the subject should be approached from several different standpoints, particularly the anatomical and physiological. The fact is well established that any impression upon the peripheral nerves anywhere in the region of the trifacial nerve will affect circulation and respiration, the degree of the impression varying according to the strength of the stimulus. Attention was directed to the especial effect produced by stimulation of the sensor area of the trifacial nerve, which was accounted for by the fact that the trifacial nerve is the sensory supply for practically all the special sensory organs, and while it has not yet been traced, it is thought quite probable that the trifacial nerve is also directly connected with the pneumogastric nerve. It is also very likely that there is a direct communication between the sensory route of the fifth nerve and the upper portion of the spinal cord from which the phrenic nerve originates. It is the opinion of the author that the term inhibition is too often considered as meaning inactivity or paralysis, while it is in reality a carefully regulated harmonious action. The inhibition which is produced by the application of anesthetic to the nostrils is the result of an attempt on the part of Nature to keep it from penetrating further into the respiratory tract by causing a cessation of respiration. As the trifacial nerve is the center of the sensory supply for all the special sensory organs, including respiration, it necessarily follows that any irritation of this nerve will produce inhibition and, if the irritation is severe enough or long-continued, fatal results may ensue.

Dr. Charles C. Biedert directed attention to the fact that the anatomical arrangement of the nuclei of the sensory portion of the trifacial nerve extending down through the medulla and the spine, must necessarily come in contact with practically all the principal nerves in the brain. The close communication of the pneumogastric nerve and the trifacial nerve is evident from the nausea and vomiting occasioned by an attack of migraine. Another example of the direct communication of this fifth nerve with the other principal nerves of the body mentioned was the observations of Dr. Ross with tetanus, which demonstrate the fact that this peculiar kind of tetanus starts in the face and gradually extends over the entire body, eventually proving fatal. While this disease is by some thought to be microbic in origin, most neurologists look upon it as a reflex condition.

Dr. I. Newton Snively stated that he felt that many of the deaths during anesthesia could be explained by this inhibitory process, and considered that artificial respiration was one of the most important factors in resuscitating the patient who was temporarily inhibitant.

Dr. Ellis E. W. Given stated that in the cases cited by the author he felt that death was due to the chloroform anesthesia, instead of being produced by reflex causes, the operation being commenced before complete anesthesia was established. Had ether been used as an anesthetic it was thought that the results would have been far more favorable.

Reference was made to the collection of CO_2 in the blood during inhibition of respiration, which substance when collected in sufficient quantities will assist in starting the respiratory organs. Ammonia was thought to have a reviving effect in some cases while in others it will produce a condition of paralysis.

Dr. Solomon Newmayer reported the case of a man who had been operated upon for sarcoma of the throat. Prior to the operation his pulse rate was from 60 to 80 per minute, but immediately thereafter it was reduced to from 30 to 50 per minute, and the possibility of a chronic irritation in the neighborhood of the trifacial nerve sufficient to produce these symptoms was suggested.

Dr. Wendell Reber told of a man who, preparatory to treatment of the thumb, injured in coupling cars, was given A. C. E. mixture. Within a few minutes after the administration of the anesthetic respiration ceased and all efforts to resuscitate him were in vain. The autopsy revealed that he was in almost perfect health and no cause for death apparent, but it was probably due to inhibition. Another case which had fallen under the observation of the speaker was that of a woman who had come to him suffering from a foreign body in the cornea, which he removed under cocaine. During the operation the patient collapsed and remained unconscious for about ten minutes, which condition it is believed was due to irritation of the trifacial nerve.

Dr. Carle Lee Felt stated that he believed most of these cases of inhibition during anesthesia were those in which chloroform had been used. He also cited a case in which bromide of ethyl had been administered prior to the extraction of a tooth, which was followed by inhibition. He did not feel that this condition would occur in ether anesthesia, provided the condition of the patients was carefully observed during its administration. The value of insufflation in restoring these inhibitory conditions was remarked.

In closing the discussion Dr. Good stated that it would be impossible to produce complete paralysis of the cardiac and vaso-motor centers, without resulting in the death of the patient, and until this stage is reached stimulation of the peripheral nerves is likely to produce these inhibitory conditions.

Ulcerations and Stenoses Following Laryngeal Intubations.—Dr. M. P. Warmuth read this paper. He reported four cases coming under his observation. He exhibited the pathological specimens and showed the seat of the ulceration. In all these patients had lived for some time after the intubation. In some of the cases the tube was coughed up a number of times by each patient and on many occasions artificial respiration had to be resorted to in order to resuscitate the patient. Where ulceration is present, the temperature and pulse will remain persistently high and the patient weak and delicate; while where there are no ulcerations the child will regain his strength and in most cases make a good recovery. In the ulcerative cases, when the tube is coughed up, it has to be reinserted immediately in order to prevent collapse of the larynx.

Dr. Nathan G. Ward referred to the experimental work of Dr. Lord of Cleveland in the larynx and pharynx. It was observed that in operations in this region involving the supralaryngeal nerve would produce inhibition, either with the patient under the influence of anesthesia or otherwise, and it made no difference whether the patient was in the primary or secondary stage of anesthesia so far as the mechanical irritation was concerned. In six cases of intubation all exhibited marked signs of inhibition, two proving fatal immediately. The fact has since been established, however, that the use of cocaine will prevent this inhibitory condition during intubation.

In closing the discussion Dr. Warmuth stated that antitoxin was used in all the cases, but he did not feel that it played any part in the production of the symptoms present, the condition, in his opinion, being due to the presence of streptococcus, which was there before the diphtheria bacillus had produced the inflammation. Experiments with the intubation tube upon healthy individuals have shown that its insertion in such cases usually produces spasms and marked inhibitory change, the reason this condition does not occur in diphtheritic cases being attributed to the protection afforded by the membrane present.

BYWAYS OF MEDICAL LITERATURE.—VI.

Dr. Mitchell's Storiettes.

A series of very short stories, occupying, as a rule, scarcely more than a page in the magazines, are appearing from the pen of Dr. S. Weir Mitchell. Most of them might seem scarcely more than trivial passing incidents but for the literary quality that the genial doctor's pen has conferred upon them. Some of them are the ordinary incidents in life touched with a sheen of humanity that the physician is apt to have brought to his attention rather frequently. Perhaps some of the physicians of the present generation who have literary aspirations will realize after reading them that they are possibly permitting valuable literary material to escape them in failing to note the salient points of many a humorous *contretemps* that our close touch with human nature at its best gives us familiarity with. The last story in the June *Century* contains just that touch of realism at the end of a sailor's yarn that so often "makes ducks and drakes" of what might otherwise be a rather good ghost story. One of the old frigates of the line is supposed to have a vision off Flamborough Head of a fight at sea just at the moment when the Constitution and La Guerrière were having their fight off the coast of Nova Scotia. The suggestion that time allowance for the ghostly visitation would have to be made because of the difference of longitude, if the story were true (for the ships were some 3,000 miles apart), rudely spoils the proper ghostly effect.

Therapeutic Optimism.

In the last number of the London *Practitioner* there are some characteristic stories of great London consultants, which inculcate the advantage of therapeutic optimism. A distinguished patient in London suffering from disturbance of digestion with enlargement in the hepatic region, some jaundice and ascites, Sir William Jenner was sent for. Sir William at once pronounced the case to be cancer of the liver, declared the prognosis as absolutely hopeless, said that his therapeutic services could be of no avail, and went his way. Friends of the patient were not satisfied and Sir Andrew Clarke was called in. Sir Andrew with the canny ways of his Scotch ancestors did not at once pronounce the fatal word cancer and condemn the patient to hopeless illness, but said that he was suffering from a neoplasm of the liver almost certainly not benignant in character, but that much might be done to relieve his symptoms, make him much more comfortable and the course of the case could be watched for possible favorable developments. Sir Andrew continued to have charge of the case for many months to the great satisfaction of the patient and his friends and not without material benefit to himself.

Apropos of optimism and its expression even in the countenance, there is a story of Sir Richard Quain, who, in his early days, being asked to visit a patient with an old practitioner friend, put on an extremely serious face as they reached the door. His old friend said to him, "For the Lord's sake, Quain, don't wear any such face as that, or the patient will take you for the undertaker."

The *Practitioner* might well have added another characteristic story that is told of Quain in later life, and which shows how well he learned the lesson of putting a good face on things. A member of the nobility in London fell sick of a complication of diseases that led to the development of considerable anemia and great emaciation. There was question just what the ailment might be. Cancer was suspected, but its seat could not be demonstrated. There was also question of pernicious anemia, or some other serious disturbance of the blood-making organs. Several consultants distinguished in their profession had refused to give a name to the nobleman's ailment. His sister who had had long years of experience under Dr. Quain's care, was sure that the doctor would be able to name the disease. Quain was called and made his examination. The sister demanded, what was the name of her brother's ailment? Quain, without a moment's hesitation, replied: "He is suffering from cachexia," a term which the sister triumphantly repeated for the benefit of the rest of the family as showing how much more definite was Dr. Quain's knowledge than that of the other consultants called.

The Cheerful Physician.

As we have touched upon the question of a cheerful face as a necessity for a physician we are reminded of some of the stories with regard to Rabelais, the great French writer, for whom a modern fad seems just beginning. It is not usually known that Rabelais was a physician and wrote during his leisure hours, the great humorous works, by which he is to live forever, at the time considering that they were of little account. Rabelais' serious work on medicine, its author fondly hoped, would surely give him a name among the great medical men of his age. His personal character seems to have been of a kind to make all men like him. He once said with regard to the disposition of the physician towards his patient that "a sad, or surly-faced physician, is one of the worst things for an invalid; while a physician of a glad countenance, open and serene maketh a sick man happy. As to the speech of a doctor, it should have but one end, without offense to God, to rejoice the heart of the sufferer." It is interesting to find that Rabelais followed his own advice, which is not always true even of the great physicians. A nobleman friend who was ill once wrote to him: "I am not well; drugs do no good; I do not know what is the matter, nor do I think that my physician knows. I am sick for you. Come, and your cheerful face will soon make me better." The secret of the success of many a physician is contained in the one word, personality, of which Rabelais seems to have had no lack.

ABUSE OF PSYCHOLOGY.

There is no term at the present time that is more abused than the word psychology. Studies in the physiology of nerve transmission, of reflex nervous action and the like, are all dignified by the name of experimental psychology. To credit the newspapers particularly it would be hard to imagine that there was any distinction between nervous physiology and anatomy and true psychology. There are many who seem to think that psychology mainly consists in the use of long terms, and who feel sure that Dr. Johnson's description of a network as a decussated or reticulated material with interstices between the intersections would appeal to many students of psychology as an eminently suitable set of words to be used for the description of the network of fibrils in the brain in order to make clear how complex is the physical basis of ideation. Of late we have had a very marked tendency to assume that animals and their ways are something more than merely analogous to man and that corresponding terms and ideas can be used to explain the action of the different speeches. Take, for instance, these sentences from a recent work on cerebral science:

"The feelings of ideal attachment in the dog and sheep are cerebral anterior, as those of real attachment are cerebral posterior. Anterior feelings are to be located both in the mouth zone and the head zone. The kissing or licking center is infracentral. The adoring or fawning center, it would appear, is precentral or anterior superior."

We hope that the subject is clear to our readers, though we do not quite like the juxtaposition of kissing and licking and adoring and fawning. Perhaps our feminine readers may also object somewhat strenuously!

THE OTHER EXTREME.

Of late years physicians have been amused by the ridiculous assumption of the invaders of medical domains who have considered that faith was sufficient to enable them to solve all the mysteries of medical science. The Christian Scientists, the faith curists, the vitapathists, all have been gifted with a copious abundance of words to explain their various theories of ills and their cure. It is not a little surprising, however, to find that those at the other extreme in regard to matters of faith are quite as liable to run off into the most senseless theories with regard to medicine and (save the mark!) therapeutics. The *Freethinker's Manual*, recently issued, has a chapter on the new medicine which is as full of absurd assumption and unscientific assertion as anything that has ever come from the hands of a Christian scientist. For instance, this: "Fever is, therefore, due to the resistance which the current finds in the blood and as soon as the current finds resistance it must overcome it or not. In the first case, we find that the resisting matter is heated and even burned. The chill in the incubation stage of fever is, therefore, caused by the consumption of the electricity of the body by the spirilli and the high temperature produced by the resistance which the products of the obstruction of the blood corpuscles offer to the electric current." The author apologizes for descanting on medical matters in a *Freethinker's Manual* but says that because he writes for freethinkers and not for medical men going to church with their prayerbooks under their arm, like one belonging to the stupid mob, "we are forced to explain the functions of the organs of the animal body and some other questions interesting to intellectual people." We would really prefer to be saved such explanations. Why is it that everyone who invents a new theory thinks that his theory will serve also to explain many things in medicine. The extension of the theories to such practical matters usually proves eminently disastrous to the theorist and discredits all the rest of his work. We would respectfully remind our philosophical friends that philosophy is one thing and medicine another and that the shoemaker gives most satisfaction when he sticks to his last.

RESURRECTIONIST LITERATURE IN AMERICA.

DR. FRANCIS R. PACKARD of Philadelphia, in his article on the Resurrectionists of London and Edinburgh (MEDICAL NEWS, July 12, 1902) mentions a number of novels that make use of incidents connected with resurrectionism as the basis of their plots. It is well known that the body-snatchers found a good market for subjects here in America also, before the enactment of our present laws with regard to the provision and distribution of anatomical material. At least one novel that had a considerable vogue about 25 years ago, used resurrectionism as a very important part of its plot. The title of the book was "Rosemary" and the author's name Huntington. The scene was laid in New York but shifts to Brooklyn, and the plot turned on the effort of conspirators to get a very handsome young woman out of the way. Somehow they could not bring themselves to actual murder, but had no conscientious scruples against the use of a mysterious drug, by which the young woman was thrown into a trance resembling death. By their connivance then the body of the supposedly dead heroine was removed from the graveyard by professional body snatchers and sold to a dissecting room. Its lifelike appearance was so striking, however, that the young medical students to whom the body was assigned refused to believe the subject dead and efforts at resuscitation proved successful. The young lady married the demonstrator in charge of the dissecting room, to whom she owed her life, as was of course proper in a well regulated novel. The details of the body snatching are given with a definiteness and precision that seem to show a familiarity with the traditions of the occupation here in America. The story will doubtless prove an interesting source of important material when the sketch of resurrectionism in America comes to be written.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

PRINCIPLES OF SANITARY SCIENCE AND THE PUBLIC HEALTH. By William T. Sedgwick, Ph.D. 8vo, 368 pages. The Macmillan Company, New York.

PRACTICAL THERAPEUTICS. By Hobart Amory Hare, M.D., B.Sc. Ninth Edition. 8vo, 857 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

DISEASES OF CHILDREN. By James Frederick Goodhart, M.D., LL.D., F.R.C.P. Seventh Edition. Royal 12mo, 812 pages. P. Blakiston's Sons & Co., Philadelphia.

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ORIGINAL ARTICLES.

THE COMPLICATIONS AND SEQUELÆ OF ACUTE CROUPOUS PNEUMONIA.

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(Continued from page 357.)

Fisher[59] does not regard pulmonary abscess as so rare a complication as is generally considered. In his experience he has seen five cases. In one case the whole lobe had broken down into pus. The cases examined bacteriologically had proved to be mixed infections. The pneumococcus was associated with the *bacillus coli* or with streptococci.

A case terminating fatally upon the 11th day of the disease is reported by Curnow,[60] in which an abscess was discovered upon the ninth day. The patient, a male, aged 37 years, who had been addicted to alcoholic abuse, had his pneumonia ushered in with pain in the back and dyspnea. On the ninth day the angle of scapula was selected for aspiration puncture, and 24 ounces of fluid, thin, puriform, and odorless, were removed. Microscopically this exudate exhibited pus cells, streptococci, staphylococci, and a few pneumococci. The thermometer registered 102° F., a fall of one degree, which immediately followed aspiration. One day later pronounced coma, with unchanged physical signs, was noted. The pleura was incised in the mid-axillary line, in the eighth interspace, and 24 ounces of pus were removed, and the cavity drained without anesthesia. On the 11th day a temperature of 107.6° F. preceded the fatal issue. The autopsy showed the lower left lobe to be the seat of congestion and bronchitis with a slight and recently developed pleurisy. Upon the left side the pleura was adherent in the axilla and posteriorly over the lower tube. The upper half of the lower lobe was pneumonic. Posteriorly and two inches from the apex, there was found an abscess cavity, one by two inches, communicating with the pleura, through a large opening, but there was no communication with a large bronchus. There was observed a recent pericarditis with dilation of the cardiac cavities. The liver was fatty and enlarged. The spleen enlarged and congested, and the kidneys fibroid.

In a case under the observation of one of us (Hare) a young woman, after nursing a case of acute croupous pneumonia, was seized with a violent chill, considerable fever, and rapidly developed croupous pneumonia, involving the middle and the lower lobe of the right side almost entirely. There was a good deal of pain in the chest due to associated pleuritis. After passing through a severe attack of acute pneumonia, the temperature failed to return to normal, a pseudo-crisis taking place on the ninth day. After this, the temperature gradually developed the septic type, although at no time was it very high. Sweats and chills developed. There was a good deal of emaciation, persistent cough which prevented sleep, and a good deal of pain. Thirty days after the beginning of the attack of pneumonia, during a violent spell of coughing, the patient suddenly brought up considerably over a teacupful of pus which was not offensive, but which came so freely as to almost cause suffocation. Prior to this time the area in the posterior portion of the lung had been supposed to be due to delayed resolution, although an abscess was suspected. Empyema had been excluded. In view of the persistent expectoration of large quantities of pus, accompanied by attacks of strangulation due to the freedom of its flow, it was finally decided because of the associated symptoms of severe sepsis that the abscess should be opened and drained through the chest wall. Before this was attempted, the patient was propped up in bed and the fluoroscope employed to determine the exact location of the abscess. The darkened area in which the abscess existed could be plainly seen when looking from behind forward with the fluoroscope, and after careful consultation with Prof. J. Chalmers DaCosta, it was decided to operate. This was done without an anesthetic as we feared that if an anesthetic were administered, strangulation might take place. The abscess cavity could not be reached through the chest wall, and a drainage tube was inserted in the lung in the hope that the pus would burrow in the direction of least resistance and escape through it. This, however, did not take place. Three days later a second abscess, containing about a half pint of pus, suddenly ruptured during an attack of coughing, and again nearly produced death by suffocation. The septic symptoms now moderated, but the patient became exceedingly feeble because of the profuse suppuration, the septic absorption, the incessant cough which prevented sleep and the fact that the constant presence of pus in the mouth completely destroyed all taste for food. Notwithstanding all these difficulties, the patient's temperature became normal on the 73d day of her illness, and remained so until her discharge on the 103d day. She is now entirely recovered, is in superb health and has been able to discharge all her duties as a trained nurse in a hospital ward for some months.

Cimbali[61] accounts for the *delay of resolution* in croupous pneumonia by the fact that it occurs most often in the debilitated, especially so in sufferers from malarial cachexia. He observes that this phenomenon is most frequently observed in those cases where an intensity of the infection is present, as a result of cardiac asthenia. He notes the fact that following the crisis, there is no change in the physical signs, the sputum is characteristic of the disease and that evening exacerbations of temperature are the undeviating rule. Cimbali further states that in these cases complete recovery was always the outcome in from four to six weeks after the crisis, and that he has never seen a relapse. Resolution antedated the patient's general improvement and he urges that treatment should include especially, what he thinks to be most imperative,—all those measures tending to increase the resisting power of the individual.

We wish to emphasize the fact that not rarely what has been thought to be an acute croupous pneumonia proves to be acute pneumonic phthisis. Sometimes, too, what is thought to be a local induration or delayed resolution proves to be in reality a pleural effusion, and Fraenkel[62] has reported the following case of induration with an interesting and valuable statement as to the postmortem findings.

A male patient, age forty-nine years, had previously been a sufferer from a left-sided hemiplegia. Stridulous respiration accompanied the affection. Seized with an attack of croupous pneumonia, the temperature curve followed the remittent type with evening exacerbations. Marked dyspnea proved a distressing symptom. Physical examination revealed dulness over the left half of the chest. Anteriorly and posteriorly the examining fingers encountered a board-like resistance. There was absence of the respiratory murmur and of vocal resonance. The left radial pulse was smaller than the right. For the relief of the dyspnea, puncture was resorted to and almost two and one-half pints of a sanguinous fluid escaped. Dyspnea, however, was not relieved. Slight systolic pulsation was diagnosticated upon the anterior aspect of the left chest. Postmortem examination showed a voluminous lung, the upper portion of which was adherent to the chest wall. The appearance of carnification was presented upon section, the parenchyma being solid, tough and dense, and presenting numerous yellow foci of fatty degeneration. Above the bifurcation, the trachea showed erosion, brought about by an aneurism the size of a man's fist, situated in the aortic arch and involving as well a considerable portion of the descending aorta.

Tuttle[63] describes a curious case in which the patient, a male aged forty years, presented no change in the physical signs, and suffered no symptoms, there being an absence of cough and expectoration. There was no fluctuation of temperature, and general improvement, with an increase of bodily weight was noted. Several times aspiration was resorted to, with negative results. The entire lung was solidified. This condition persisted for four months; the tissue then began to break down with general destruction and suppuration. This process confined itself to the lung first affected. There was no single abscess cavity.

Hydropneumothorax, as a complication of pneumonia of the croupous type, sometimes comes on. A fatal case in a man of twenty-two years is reported by Anthony. The attack was one of pleuropneumonia. Tubular breathing with pneumococci in the sputum, were two diagnostic points of importance. Amphoric breathing was noted on the fifth day. Percussion dulness, with absence of respiratory sounds, was appreciable by the seventh day, throughout the lower half of the thorax. In the central regions, amphoric breathing was noted on auscultation. The succussion splash was also in evidence. Displacement of the heart, to the left, was noted on the ninth day, the dyspnea, necessitating thoracentesis, 1100 grams of sero-fibrinous fluid, containing pneumococci in pure culture, were evacuated. A subsequent empyema was treated by aspiration and resection of the ribs. Death occurred three months after the onset of the disease.

A man of twenty-four years was under the care of Edwards[64] who on the ninth day developed a pneumothorax, located over the upper anterior segment of the chest. It was localized by the pulmonary consolidation, and thus did not become generalized. Possibly it was due to the softening and rupture of a hemorrhagic infarct. There was no effusion.

Disturbances of the nervous system over and above the signs of meningitis, or true meningeal inflammation, as already considered, are by no means as rare as many persons believe. Sometimes these conditions arise from emboli, sometimes from septic foci and sometimes from aortic inflammatory processes.

Paralysis in croupous pneumonia was recognized by Huxham; later it was described by Charcot, Lepine and Vulpian as *hemiplegie pneumonique* as a rather frequent complication of croupous pneumonia. It may occur early in the course of the disease, or may not develop until the period of convalescence. Such a paralysis has been observed in children as early as the eighteenth month, and as late in life as the seventy-sixth year. Pierre Boulloche[65] has collected 56 cases resulting from croupous pneumonia. In this analysis the type of paralysis was found to be nearly always hemiplegic. In advanced years death nearly always ensued upon this complication, while in the young the mortality was very much lower, recovery being the rule. In one case occurring at the age of fifty-eight, hemiplegia with aphasia developed during the course of the disease, but ended in recovery. Strause[66] gives an excellent description of hemiplegia in old age in a patient of seventy-six years with right-sided pneumonia. On the sixth day dyspnea was urgent, and complete left-handed hemiplegia occurred followed by death the same day.

At the autopsy the right lobe was found consolidated and in a condition of gray hepatization. Vegetations were found upon the mitral valve, and atheromatous plaques in the aorta. The right hemisphere showed a patch of softening seven millimetres in diameter which extended to the neighborhood of the lenticular nucleus. The vessels in the neighborhood of the softening were obliterated.

In some instances the paralysis is monoplegic and this is well illustrated by a case described by Boulloche in a patient thirty-two years of age, who from the onset of the disease was delirious and who presented a typical right-sided croupous pneumonia. Paralysis of the right arm and right side of the face was discovered upon the sixth day of the disease. Movements of the right leg were entirely retained. There was aphasia but no loss of consciousness, neither was there any disturbance of sensibility; 12 days later the fever had subsided, the aphasia had diminished considerably, and the muscles of the face were less drawn. Sensation in the pharynx returned and a day later the aphasia disappeared. The facial paralysis passed off; the relative strength of the two arms showed only a decrease of 10° in the affected side, and at the expiration of 20 days the monoplegia had entirely disappeared.

Aufrecht[67] reports a case of complete hemiplegia occurring in a child two and a half years old, in which the paralysis entirely disappeared in a few hours. The paralysis was preceded by high temperature, nausea and vomiting. On the following day slight convulsions followed by complete paralysis of the left side of the body occurred, but within a few hours the paralysis disappeared; in one week convalescence was fully established, and the patient rapidly recovered.

Lanth[68] records the following case as illustrating how cerebral lesions may complicate croupous pneumonia: A man, sixty-two years of age, was taken ill with a chill and pain in the right side. Three days later a diagnosis was made of left-sided pneumonia. There was slight albuminuria; high fever developed, and the right lung became involved. On the 10th day improvement was decided, but two days later an active delirium and a complete right-sided hemiplegia with aphasia developed. Autopsy two days later revealed gray hepatization of the inferior lobe of the left lung and in the upper part of the lobe an abscess. There was also a lesion of the aortic valve. The meninges were infiltrated throughout. On the left side and from the fissure of Sylvius there was a purulent exudate, which had caused obliteration of the left Sylvian artery. There was also considerable softening of the brain substance in this area. Bacteriological examination showed the pneumococcus not only in the meningeal exudate but in the vegetations of the endocardium.

Softening of the brain has occurred in other cases, in one, reported by Suckling, arising from thrombosis of the basilar artery, and from thrombosis in the circle of Willis; with plugging of the superficial arteries of the left hemisphere. While these lesions have been found as the causative agents in producing hemiplegia, there are also cases on record in which the autopsy has been negative. In other words hemiplegia with lesions and hemiplegia without lesions occur. In the former case hemiplegia results from either meningitis or softening and is due to thrombosis or embolism. It is possible for hemiplegia to develop in which all the characteristics of pneumonia appear without there being any relationship between the two conditions. It is interesting to note that other cases are on record in which aphasia with hemiplegia has occurred in the course of croupous pneumonia, in which a difference of temperature has existed in the two sides of the body. Such a case is reported by Carnien,[69] and still another case is recorded in which there was right-sided pneumonia and left-sided hemiplegia with loss of pulse in the right radial. Evidently in this instance of thrombosis or embolism the obstruction not only involved the arteries of the brain but also of the arm.

The fact that these marked nervous manifestations sometimes come on early in an attack of croupous pneumonia, emphasizes the importance of examining the chest in all cases of paralysis, not only because pneumonia is competent to produce hemiplegia or other localized palsy, but also because these conditions are quite competent to produce pulmonary lesions. In other words, pulmonary lesions may be the cause of hemiplegia, and hemiplegia may be the cause of croupous pneumonia.

The paralysis complicating croupous pneumonia in a certain number of instances are like that of diphtheria of the toxic type.

Jaccoud[70] describes a case of hemiplegia occurring in a male fifty years of age. The paralysis manifested itself upon the 13th day. The whole left side of the body was paralyzed. There was incontinence of urine and feces, and tactile sensation was much diminished. Before death, which occurred on the 15th day, contracted pupils, delirium and vomiting were noted. The autopsy revealed the presence of three liters of non-odorous pus in the left pleural cavity; the lung was in the stage of red hepatization beginning gray in spots. The brain was edematous, and patches of softening covered with pus were found near the fissure of Sylvius and the base of the cerebellum.

In two cases of hemiplegia reported by Ransom,[71] one was caused by a small patch of softening in the crus, and in the other case the brain was literally riddled with abscesses. In Wublad's case[72] the hemiplegia manifested itself at the onset by apoplectic symptoms followed by complete right-sided paralysis (including the face). The pneumonia pursued an otherwise typical course and ended in recovery. At the end of three months the paralysis had completely disappeared.

Aufrecht[73] describes two cases of paralysis occurring in pneumonia; in the first case a child twenty-one months old, became comatose upon the third day of the disease and without convulsions or vomiting developed paralysis of the left arm and leg upon the eighth day. The following day crisis, marked by profuse sweating, occurred. The child's mental condition improved, but the paralysis persisted without signs of improvement for three days. The hand was the first to improve and then the leg, and in two weeks from the day of crisis recovery was complete. The second case described was a child twenty-seven months old in which the paralysis was preceded by fever, vomiting, and convulsions. Paralysis of the entire left side of the body appeared with the onset, and soon disappeared, but a peculiar nodding of the head that accompanied the paralysis continued. Cough did not appear until the sixth day and local physical signs not until the seventh. Consolidation was confined to the left upper lobe. Recovery was complete.

Bozzio[74] mentions the case of a man sixty-six years old with a tuberculous, but otherwise favorable history, which is interesting in spite of the existence of tuberculous infection by reason of the pathologic study. The patient had recovered from an attack of pleurisy with effusion on the right side, and a dry pleurisy on the left. Shortly afterward a fatal pneumonia developed involving the left lung. On the third day vomiting, deviation of the eyes, difficulty of speech, and slight rigidity of the neck developed; continuous subdelirium persisted until the eighth day when paralysis of the right arm and leg occurred. Symptoms of paralysis of the seventh nerve were present. The reflexes were completely abolished, but sensation was normal. The autopsy revealed double tuberculous pleurisy and recent hepatization of the left lung. There was slight cerebral edema but no meningitis, thrombosis, embolism or cerebral hemorrhage. Coagula were found in the heart, a small renal infarct and thrombosis of some of the small pulmonary vessels were discovered.

Aldrich[75] has recently reported a case of paralysis due to embolism of one of the right lenticulo-optic arteries, his patient, a male, eleven years old, with a favorable family and previous history, during the course of an attack of croupous pneumonia, in which high temperature, delirium and hacking unproductive cough were prominent symptoms, developed upon the ninth day jerky choreic movements, which continued until paralysis of the left arm and leg was complete. The head was turned to the right with a conjugate deviation of the eyes to the same side. The pupils were widely dilated and reacted slightly and slowly to light. The facial muscles and muscles of deglutition and phonation were unimpaired. The right knee jerk was absent; the left questionable or absent: the skin reflexes and sensation normal; Babinski's sign was present in the left foot. The heart sounds were irregular and indications of failure and dilatation of the right heart were present. Death occurred upon the 14th day. At the autopsy the liver was found slightly enlarged, the mucosa of the intestines was irritated but no typhoidal ulceration was discovered. The right lung was almost completely consolidated but resolution was advancing; the left lung was engorged but contained no pneumonic deposits or pleural adhesions. The cerebral meninges were slightly injected; an area of softening was found occupying the region of the posterior half of the right lenticular nuclei and the hinder part of the posterior limb of the internal capsule, involving slightly the *thalamus opticus*. Complete embolism of one of the middle lenticulo-optic arteries was discovered; no other spots of softening were found.

Preble describes a case of monoplegia occurring in a child two and a half years old, in which complete paralysis of the left arm continued for three days and then disappeared. No other paralyses were noted. The development of the pneumonia was preceded by the formation of a small patch half an inch in diameter in the throat, and some submaxillary adenitis. No culture was made of the exudate but the membrane disappeared promptly after the administration of antitoxin, and did not form again. The pneumonic consolidation occupied the right upper lobe. In this case the possibility of toxic neuritis due to diphtheria must be considered.

Batten[76] relates a remarkable case of abscess of the right frontal lobe as large as a small orange, but which did not come to the surface, but burst into the right ventricle. The pus obtained from the contents of the cavity showed staphylococci and large numbers of an organism morphologically indistinguishable from pneumococci.

From the clinical symptoms there was a suspicion of empyema on the right side, but there were no symptoms or signs of cerebral involvement until a few days before death, when the patient became confused and refused to take food. During the next few days there alternated a semi-comatose condition and almost complete clearness of brain function. His right pupil was contracted and there was decided loss of plantar sensibility on the left side. There was optic neuritis which was more decided on the right side. The postmortem, which was limited by the family to the opening of the calvarium, showed great fulness of the meningeal veins, but no meningitis, and the existence of the above described abscess.

Aufrecht[77] gives a graphic account of a case in which delirium, retraction of the head and confusion of mind were the early symptoms, disappearing after the lapse of a few days. An empyema developed which was evacuated and drained. Improvement in the condition followed and the mind cleared. At the end of ten weeks the following grave symptoms again developed: A high temperature, severe headache, marked mental confusion occurred, and at the expiration of twenty-four hours the patient died. At the autopsy purulent meningitis and ependymitis were found in association with an old abscess, replacing exactly the left caudate nucleus. This observer is rather impressed with the idea that the period of delirium and retraction marked the period of abscess formation which became latent and also, by extension to the lateral ventricles, was subsequently instrumental in developing the meningitis.

Transitory aphasia is a complication reported by Chantemesse.[78] This observer has found that aphasia usually occurs about the second or third day of the disease, that it is ordinarily preceded by headache and giddiness even to the verge of syncope; in some cases numbness of a sensation of pricking in the right side of the face and right arm are experienced; in other cases it may set in abruptly without loss of consciousness or become manifest after a typical apoplectiform seizure. The characteristics of the speech impairment do not differ from those dependent upon an organic lesion of the third left frontal convolution upon the left side of the brain. The paralysis may involve the entire right side of the body but usually only the inferior portion of the right side of the face, the right half of the tongue and the right superior extremity are affected; as a rule sensation and reflexes are not altered. In pronounced cases the paralyzed parts may be the seat of increased redness and edema, more or less circumscribed and increased by heat. The phenomena persist commonly for from a few hours to a few days and seem in no way to influence the primary disease.

It is doubtful whether the clinical picture and pathology of transitory aphasia differs in any particular from many of the cases already studied and described as hemiplegic. They probably represent the cases in which no lesion is found postmortem.

Neuritis occurring chiefly as a sequel to croupous pneumonia has been described by several observers. These cases resemble those described by Boulloche as paralysis with muscular atrophy coming on during the period of convalescence.

Leszynsky[79] records a case of neuritis of the brachial plexus occurring in a male thirty-six years old, presenting no history of traumatism, exposure to cold, alcoholism, rheumatism, or syphilis that during the period of convalescence from croupous pneumonia developed neuritis involving the brachial plexus on both sides. Five months later there was a pronounced and typical paralysis of the left *serratus magnus* and also some atrophy of the deltoid and supra-spinatus. Upon the right side there was well marked atrophy of the deltoid with absolute anesthesia in the cutaneous distribution of the circumflex nerve and complete loss of faradic irritability, also atrophy of the supra-spinatus.

Krafft-Ebing[80] describes a case of bilateral neuritis occurring in a male of thirty-seven years, with a negative history of alcoholism or specific infection, that followed an attack of croupous pneumonia. He suddenly lost power in both upper extremities; there was anesthesia down to the elbows, and hyperesthesia to the fingers. The paralysis persisted but anesthesia disappeared in twelve days. There had also been transitory dyspnea, dysphagia and impairment of hearing, together with lancinating pains at the nape of the neck, on the back and in the distribution of the ulnar nerve. There was progressive wasting of the muscles about the shoulder, with degenerative electric reactions and fibrillary muscular contractions. The reflexes and electric irritability were enfeebled. Subacute anterior polio-myelitis was excluded by the relatively favorable course of the symptoms and absence of vasomotor disturbances.

Kelynack[81] observed in a man and his wife suffering from croupous pneumonia, peculiar nervous manifestations in both; in the woman a tetanoid condition, continuing for several days, developed, while in the man there were choreiform movements with severe myalgia, distinct arthritis of the ankle, and intense hyperasthesia of the lower extremities. Tetany is mentioned by Page[82] as having occurred two weeks subsequent to an attack of croupous pneumonia in a girl two years of age, ill-nourished and rachitic. The chest presented a slight rachitic rosary, and she was chicken-breasted. Hyperpyrexia was present from the time of admission to the hospital and rose in spite of ice baths to 107° F. The apex and body of the left lung and the apex of the right lung were consolidated. There was wild delirium and at times tetanic rigidity and convulsive twitchings throughout the course of the disease which ended by crisis on the sixth day. At this time several spots upon the body and extremities resembling a burn were noted, probably due to constant jactitations. Convalescence was rapid but at the end of two weeks a stiffness of the extremities developed which grew more pronounced and was diagnosticated by Griffith as tetany. The forearms were flexed upon the arms and the wrists upon the forearms; the little fingers were strongly extended, while the middle and ring fingers were strongly flexed; the index fingers and thumbs were in a partly flexed position and always stiff. The legs were slightly flexed on the thighs and the feet were in a position of *talipes equino-varus.* The jaws were slightly stiffened, showing their unnatural movements during mastication or crying. Sensation was good and the reflexes all exaggerated. Improvement was gradual.

Eason,[83] in a study of the relation between *croupous pneumonia and the disturbances of the sympathetic nervous system*, notes an inequality of the pupils, proptosis of the eyeball, flushing, pallor, and the cerebral symptoms so often associated with apical pneumonias. The inequality of the pupils appears to depend upon unusual dilatation of one pupil; the absence or presence of the inequality, apparently depending upon the part of the lung affected. Thus it occurs in apical, but evidently not in basal pneumonia. Flushing of the cheek is often found on the side of the affected lung.

Intense delirium is especially prone to occur in alcoholics, as we all know.

Three cases of mania are reported by Campbell[84] in youths of fifteen, sixteen and twenty years. In one of the cases, crisis upon the seventh day was followed by a wild delirium, acceleration of the pulse, a cold, clammy skin, and pallor of the face. In a few hours death occurred; the lungs had almost completely cleared. In the second case wild delirium seized the patient at the end of the fifth day. There were present rational intervals of brief duration. In two days the delirium subsided, the patient recovering. In the third case the patient showed a temperature elevation to 105° F. Crisis occurred upon the sixth day. Twenty-four hours later delirium was a marked symptom and the following symptoms were presented: Subnormal temperature, cold, clammy skin, exhaustion and death. The patient lived but thirty hours from the time of the appearance of the maniacal outbreak.

One of us (Hare) has recently seen in consultation with Dr. Fee of Lawrenceville an interesting case of a lad of eighteen years, who at the time of crisis became violently insane, but speedily recovered.

Until Weichselbaum[85] isolated the pneumococcus from the pus aspirated from the synovial sac of joints involved during the course of croupous pneumonia, the occurrence of arthritis was considered a coincidence, but since 1888 arthritis and osteo-arthritis have been recognized as a pneumococcus infection.

Leroux[86] collected some 28 cases and later Cave[87] analyzed 31 cases reported almost entirely by Continental observers, completing a study of this complication up to the date of his paper.

The conclusions arrived at were that the joint affections were always continuous, with none of the fugitive characteristics of true rheumatism. In the 31 cases, 23 died and eight recovered; 28 cases were immediately associated with pneumonia. The symptoms of arthritis usually followed the onset of pneumonia at intervals varying from a few days to a fortnight. In two instances observed in children by Boulloche and Oliva, the arthritis is said to have preceded the pneumonia (in Boulloche's case) three days. (The latent development of the physical signs in children should not be forgotten in fixing the advent of complications). In the latter case, that reported by Oliva, arthritis developed seven days previous to the appearance of the usual signs of pneumonia. Cave regards this case as doubtful pneumococcus arthritis, occurring as a complication of pneumonia as the pneumococcus was not demonstrated in the fluid of the joint. These two cases are the only instances in which this complication occurred in individuals under thirty years of age. Three of the cases collected by Cave occurred independently of pneumonia, and a fourth reported by Oliva is doubtful.

The affection is essentially one of adult and advanced life, far commoner in males than in females. In 29 cases the age incidence was as follows: Before the 10th year, two cases; 10 to 20 years, no cases; 20 to 30 years, one case; from 30 to 40 years, five cases; 40 to 50 years, nine cases; 50 to 60 years, six cases; 60 to 70 years, four cases; 70 to 80 years, two cases.

Traumatism, rheumatism, lead cachexia, arthritis following enteric fever, and the deposit of uratic crystals in the cartilage are given as predisposing causes, a history of damage to the joint being present in 10 of the 30 cases. The arthritis is commoner in the upper extremity than in the lower; in 14 cases the upper extremity was alone affected; in 10 the lower extremity alone; in seven there were multiple lesions affecting both upper and lower limbs. In 19 cases inflammation was confined to a single joint; in the remainder two or more joints were involved. The larger joints, with the exception of the hip, are more prone to infection.

In all of the cases included in Cave's collection, the pneumococcus was demonstrated in the fluid in the joints with the exception of Oliva's case.

In the cases in which arthritis occurs there is frequently a widespread infection of the system with the micro-organism. Cave found malignant endocarditis in six cases, pleurisy and empyema in five; pericarditis in two; nephritis in three; meningitis in six, and peritonitis in one. In mild cases, or those of short duration, the synovial membrane alone may be affected with loss of polish and injection of the fringes. But in many cases the cartilage is partially or completely eroded and the surface of the bone laid bare.

In the case reported by Picqué and Veillou[88] pus tracked upwards from the knee six inches along the femoral artery, and downwards between the muscles of the calf. The result in many cases is adhesions or complete ankylosis. In the milder cases the function of the joint may be completely restored.

Infection of the articular structures probably takes place through the blood. From a weakening of the natural barriers, the result of injury or disease, the germs naturally tend to settle and develop under these conditions.

Raw[89] has added to this collection seven cases of arthritis occurring in the course of croupous pneumonia, six of which were suppurative and one serous; these cases represent the entire number of instances of this complication occurring in 817 cases of croupous pneumonia, a percentage of 1 per cent. Curiously enough his cases correspond closely with those recorded by Continental physicians, in that six were males and one a female. In all seven cases the pneumonia was right-sided, and the joints affected were all on the right side; Raw regards this as only a coincidence, although the fact is striking; of these seven cases four recovered and three died. This observer has noticed a slight redness and pain in the shoulder joint of the side affected, which subsided with the crisis in some cases of croupous pneumonia.

The following cases of arthritis and osteoarthritis as complications of croupous pneumonia are all presented by French physicians and were all discussed in the French journals:

In a table of 11 cases, Vogelius[90] has reported that in two of these the pneumococcus was found as the cause of arthritis. In the majority of cases this complication became apparent as early as the fifteenth day after the onset. In one case the arthritis appeared upon the 11th day. In six cases a purulent exudate was found. In two cases it was sero-purulent, and one sero-fibrinous. The exudate in ten of the cases is not referred to. Considerable destruction of the joint was observed in four cases, due either to periarthritis or to ulceration of the articular cartilages, with denudation of the bone.

In a man aged fifty-six, Rendu[91] observed a synovitis of the left sterno-clavicular articulation, intensified by a serous synovitis of both knees. The affected parts were aspirated, incised, drained, and immobilized. Microscopical examination of the exudate presented pneumococci, virulent in pure culture.

Macaigne[92] has had recorded a case of croupous pneumonia, associated with effusion into the knee-joint of the affected side. Upon aspiration, creamy, greenish pus containing pneumococci was withdrawn. The pneumonia subsided, but the condition of the joint became more aggravated and finally arthrotomy was performed. Pneumococci were demonstrable in sections made from the synovial membrane of the joint. Tournier and Courmont[93] present the case of a man aged fifty, who upon the sixth day of the disease manifested symptoms of a markedly acute, suppurative arthritis of the left knee. Arthrectomy failed to relieve the condition. Death resulted from inflammation of the other serous surfaces.

In Bois'[94] case the pneumonia was in association with suppurative arthritis of the wrist-joint and a left-sided empyema, and for the latter complication incision and drainage were demanded. Gailliard and Morley report one case of arthritis with recovery. Upon the fourth day of the disease, swelling and pain in the knee, in a man of sixty years, developed. Another case was reported by Mennier.[95] Aspiration resulted in the escape of a quantity of a dirty yellowish fluid, which microscopically yielded pneumococci and staphylococci. Inoculation of a mouse with this exudate brought on an attack of pneumonia. Bouillon was now inoculated and after death of the pneumococci, streptococci were in evidence. Bois observed that arthritis of a single joint is most commonly encountered and that the shoulder and knee joints are oftenest affected.

Vogelius[96] has reported three cases. In the first of these, a male aged sixty years, in whom before the physical signs of the pneumonia were developed, there appeared an empyema with pain and swelling of one hip joint. Pus appeared and bacteriologically there were found diplococci, apparently identical with Fränkel's micro-organism. The patient recovered. In the second case a man aged thirty-eight years developed upon the fifth day pain at the middle of the right clavicle; this was succeeded by swelling, redness and fluctuation of the right sterno-clavicular articulation. Upon exploration, a sero-purulent fluid was found, in association with yellow membranous flakes, this being followed by disorganization of the sternal end of the clavicle. Many diplococci were discovered in the exudate. The patient recovered.

Fernet[97] reports two incidences of osteo-arthritis. The first of these is reported in conjunction with Lacapere. A man of forty-seven years suffered arthritis of the right wrist, a few days following crisis. The swelling was well marked upon the dorsal aspect, and in association there were pain and redness. Aspiration yielded a few drops of a clear watery fluid which exhibited pneumococci. Swelling disappeared but fluctuation was still present upon the 38th day. Lateral movements of the wrist joint were accompanied by crackling. Radiography revealed a separation of the carpus and the bones of the forearm on the unaffected side. The diseased side presented a grayish mass. The ends of the bones of the forearm were apparently in contact with the carpus. The extremity of the radius was enlarged and eroded. Evidently in this case, adhesions were formed between the radius, the ulna and the carpus. Ankylosis would appear to be a natural termination.

Fernet[98] also attended two cases. In both of them the sterno-clavicular joint was affected. A sudden onset was followed by severe pain and considerable swelling, with very little or no redness present. The swelling resulted from the edema of peri-articular cellular tissue; that it was produced by an arthritic effusion was shown by experimental puncture. Rapid erosion of the joint surfaces gave crepitation on the 13th day. Fibrous ankylosis prolonged the duration of the case. In one case the natural termination took two months. The other case terminated fatally at the end of three weeks. Autopsy showed the following facts: Infiltration with serum in peri-articular cellular tissue. The muscles were pale with purulent striæ, and there was destruction of the cartilage and the ligaments. Effusion in the joint was present. With difficulty a few drops of serum were obtained which yielded a pure culture of the pneumococcus. In this last case there were found a pulmonary and meningeal infection.

Miller[99] has recently reported a case involving the right wrist on the 11th day of the disease. The subject, a man with no history of injury and a good personal history, but a habitual drinker, came under observation upon the seventh day of the disease. The local physical signs were confined to the left upper lobe, the temperature was 103°, pulse 100, respiration 44. The blood showed a slight leucocytosis of 18,000, and the urine a trace of albumen. On the 11th day a defervescence occurred accompanied by profuse sweating and marked amelioration of the general symptoms and a fall in the leucocyte count to 13,400. On the same day pain was experienced in the right wrist and swelling was noted; later the joint became reddened and edematous, but no grating was detected. Puncture of the joint and aspiration of the fluid yielded upon bacteriological examination lancet-shaped diplococci. Two and one-half months subsequently the wrist was still stiff and of little use, and the prospect of complete restoration of function seemed very doubtful.

Preble records a case occurring in a male, aged thirty-three years, with a favorable family and personal history. The patient had an attack of influenza a month previous to the pneumonia. The onset was announced by a chill, diffuse pain, especially marked in the left side, but pain was experienced upon the opposite side when inspiration was forced. There was pain in the right shoulder and in all the joints of the left arm. He had some cough, nausea, vomiting, anorexia, constipation and insomnia. Respiration was rapid and noisy. The skin was markedly jaundiced and over the sacral region erythematous; about the left shoulder and elbow the skin was discolored. Pneumonic consolidation occupied the left lower lobe, and upon the opposite side a pleuritis with effusion. There was also multiple pneumococcus arthritis.

Since this paper has been prepared for publication we have been much interested in the valuable contribution of Herrick of Chicago upon pneumococcic arthritis which was published in the *American Journal of the Medical Sciences* for July, 1902. Herrick has discovered 52 cases in the literature of the subject, including some of his own. It is interesting to note that in 2,292 cases of pneumonia treated by various Swiss and German physicians, only two cases of arthritis occurred. In regard to the frequency with which different joints are involved in this complication the following quotation from Herrick's paper seems to us of interest: "In 23 of 52 cases the upper extremities alone were involved; in 18 cases the joints of the lower extremities alone; in 11 there was involvement of joints of both the upper and lower extremities. These figures show a slight preponderance in favor of limitation to the upper extremity, but so slight that little or no significance can be attached to it. In fact the knee seems to be the joint oftenest affected, being involved in 22 of the 52 cases, in three of which both knees were affected, so that out of a total of 84 joints the knee makes up 25, or about 30 per cent. The involvement of other joints was as follows: the sterno-clavicular, eight times; the shoulder, 12 times; the elbow, nine times; the wrist, eight times; the metacarpophalangeal, twice; the hip, three times; the knee, 25 times; the ankle, three times; the metatarsophalangeal, three times. The arthritis was monarticular in 32 instances, or in 61.5 per cent. of the cases. The joints thus solitarily involved were: shoulder, 10 times; knee, nine times; wrist, five times; elbow twice; sterno-clavicular, four times; and the hip, ankle, metacarpophalangeal, and metatarsophalangeal each once. Of the remaining cases there were involved two joints, nine times; three joints, four times; four joints, once; more than four, three times. These figures bring out the fact that the larger joints are more often affected.

Herrick, therefore, believes that we may conclude that:

(1.) It is a rare affection, found oftener in men, sparing no age.

(2.) It appears oftenest during or shortly after croupous pneumonia, sometimes as late as the third week after the crisis.

(3.) It may be primary in the joint, and severe and even fatal constitutional symptoms may result from the toxemia thus induced; in these cases of primary pneumococcic arthritis pulmonary localization may or may not occur.

(4.) Previous damage to a joint as by trauma, rheumatism, or gout favors the localization.

(5.) The lesions may be limited to the synovia or may be more extensive, involving the cartilages and bones. The peri-articular structures may be involved. The subacute cases are sometimes highly destructive to the joint, and the same is true of some of the other acuter ones.

(6.) The lesions are usually monarticular (61.5 per cent.), the larger joints being oftenest involved. The knee is the joint most frequently affected. The joints of the upper extremity are affected a little oftener than those of the lower, but the difference is insignificant.

(7.) The condition is recognized by the ordinary signs of an acute or chronic inflammation of a joint. Exploratory aspiration, with bacteriological examination of the fluid, is the only means of recognizing the pneumococcic nature of the inflammation. The gonorrheal arthritis and peri-arthritis have to be carefully excluded, as well as the arthralgias following pneumonia.

(8.) The prognosis is grave—mortality 65 per cent.—largely because of the accompanying bacteriemia and involvement of other more vital parts of the body (meninges, pleura, pericardium, etc.). Yet spontaneous recovery occasionally follows, even where there is a purulent exudate.

(9.) The cases of suppurative pneumococcic arthritis should be treated by immediate incision and drainage. Serous arthritis may often be healed by aspiration, rest, and compression.

Still another important complication is *plegmasia alba dolens*. J. M. DaCosta[100] had under observation a girl aged nineteen years, in whom the pneumonia presented cavernous breath sounds, at the angle of the left scapula, and likewise pectoriloquy. On the 30th day a small cavity was suspected; two days subsequently an attack of pleurisy was diagnosticated and upon the forty-fourth day there was noted an exacerbation in the temperature curve, with pain in the right calf, which disclosed the presence of considerable swelling. Pain was evidenced along the line of the long saphenous vein, with absence of redness and resistance. One day later there appeared swelling, mottling and tenderness of the left leg and thigh. The swelling was firm and resistant, unaccompanied with edema of the veins or any marked degree of their prominence; there was observed, however, some engorgement of the external saphenous, near its passage into the popliteal. Bilateral increase of the knee-jerk, and painful electric reaction, were demonstrated.

Convalescence was not delayed by the existing phlebitis. Three months later, tubercle bacilli were discovered in the sputum. Pain and swelling gradually disappeared. In five months motion had been completely restored.

In another case, DaCosta discovered in a woman aged twenty-eight years, a termination of the disease by lysis on the 20th day of the attack, with the development of pain and weakness in the left leg and tenderness of the left calf. There was but slight enlargement of the veins, the temperature in a few days rising to 101° F.

Associated with this symptom there were noted: Cutaneous mottling, prominence of the veins together with pronounced swelling, hardness and tenderness that was present in the left femoral vein. Subsidence of the swelling is reported to have occurred upon the eighth day. This same physician[100] reports a case of bilateral phlebitis, involving primarily the right saphenous and later the veins of the upper left thigh; the complication having in association with it turgescence of the abdominal veins. There was numbness of the right leg, with pitting on pressure at the upper part of the right thigh. Convalescence was protracted but complete.

In Laache's[101] case, a male, aged twenty-one years, had, following crisis, a swelling of the right lower extremity and enlargement of the femoral vein, which palpation revealed to be hard and cord-like, and at the same time eliciting pain. There was tenderness and enlargement of the inguinal glands. Convalescence was protracted.

Hasell[102] details a case in which five days following crisis, the left thigh and leg presented swelling and tenderness along the course of the long saphenous vein, severe pain being suffered by the patient. The temperature rose to 101° F. The affection subsided gradually.

Mourse[103] attended a patient in whom the pneumonia was complicated by a pleurisy and attended by slow convalescence. After a few hours, pain, swelling and tenderness was experienced in the left leg. An inch below the saphenous opening and directly over the saphenous vein, a swelling developed which had its counterpart in a similar enlargement at Poupart's ligament. These swellings were exquisitely tender, which tenderness extended along the course of the implicated vein. There was some edema. Treatment was effective in abating the duration of the affection, after two weeks' treatment, but venous induration and occlusion remained. This patient gave the history of an antecedent *phlegmasia alba dolens* in a previous pregnancy, and throughout all of her pregnancies. She had, according to her own statement, been a sufferer from varicose veins.

In a male aged thirty-six years, Katz[104] relates the occurrence of pain, swelling, edema, some cyanosis and a fall in temperature in the left leg, immediately following crisis. The femoral vein defied palpation on account of the marked degree of swelling. In three months the edema subsided. There were no fever, albuminuria or cardiac complications.

A case ending fatally is reported by Metcalf.[105] The patient was a woman of twenty-seven years, who during convalescence, experienced pain and swelling in the left extremity. Palpation revealed a cord-like popliteal and femoral artery with pain as a marked symptom. Thirty days from the onset the swelling subsided. Ten days later it had markedly diminished. The sitting posture developed sudden and pronounced asthenia with associated restlessness, dyspnea and pain in the cardiac region. Death from syncope occurred 15 minutes later. The autopsy revealed the existence of firm, white fibrinous coagula, adherent to the walls of the iliac, femoral, and popliteal veins throughout the greater part of their entire extent.

In a woman aged forty-eight years, Porte[106] records the circumstances of the occurrence of phlebitis of the right leg. On the sixth day there was apyrexia; later there were found a rapid irregular pulse, dyspnea, a high temperature, and fainting spells. At the autopsy there was found obliteration of the internal saphenous vein. Red hepatization of the upper right lung, a blood clot on the tricuspid valve, and arterial obliteration at the base of the left lung. Death was brought about through embolism.

An interesting case is detailed by Smith and Porter.[107] Two months following pneumonia, there were noted in a male patient numbness and loss of power. Both feet became cold, bloodless and edematous. There was change in the normal color, and soon a purple hue was in evidence. Bullæ appeared and a lack of arterial pulsation was observed. Agonizing pain was experienced in the feet and legs. The temperature remained between 100° F. and 101° F. Delirium appeared on the 14th day, and in a brief time complete paralysis followed which involved the left arm and left leg, accompanied by a slight paralysis of the right side of the face, with partial loss of consciousness. There was noted a relaxation of the sphincters, also an irregular, intermittent heart and Cheyne-Stokes respiration. Death occurred on the 17th day. Postmortem showed the following: Brain much softened, especially on the right side; the middle cerebral artery was the seat of a firm clot. Congestion of the lungs, and the bronchial mucosa, with a mucoid exudate was rather pronounced. There was a large hemorrhagic infarct in the upper lobe of the right lung. Heart, pericardium, and spleen were normal; liver large and slightly fatty; kidneys intensely congested, with evidences of a beginning cirrhosis, *i.e.,* an adherent capsule and a puckered exterior. Femoral arteries were normal. A hard clot was found on the right popliteal; similar ones being discovered in the anterior and posterior tibials.

Closely allied to these cases are those of *thrombosis of the veins of the arm.*

Clarke[108] describes this complication occurring upon the ninth day of the disease. Thrombosis of the veins at the bend of the left elbow and part way down the forearm set in with a rigor. The blood showed a leucocytosis of 20,000, and the presence in the blood of pneumococci was demonstrated before death. Septic infarcts of the spleen and liver found postmortem contained pneumococci. Clarke was impressed with the curious fact that in view of the extreme coagulability of the blood after death from pneumonia thrombosis during life was not more frequent.

Since this paper has been prepared for the printer we have read with interest in the *Bulletin of the Johns Hopkins Hospital* for June, 1902, a report of three cases of peripheral thrombosis in pneumonia with a review of those previously published. In this paper, the author, Dr. Walter R. Steiner, speaks of the exceedingly rare occurrence of this complication, for he could only find 38 cases reported. In 27 of these the thrombosis occurred during convalescence. In one case it occurred at the time of crisis and in four during the course of the disease; and in the cases collected by him the lower extremities were always involved. The left lower extremity was involved in 16 cases; the right in 10, and both in seven. The more frequent involvement of the left extremity is attributable in this disease, as in typhoid fever, to the greater length and obliquity of the left common iliac vein and its passage beneath the right common iliac artery. Adding Steiner's three cases to the 38 which he found in literature, making 41, we find that recovery occurred in 25; death in nine and that no definite information is given of seven.

Probably thrombosis or embolism is always responsible for *gangrene of the extremities* after pneumonic infection.

Zuppin[109] reports a case of spontaneous gangrene of both extremities, which occurred in the course of a croupous pneumonia. A girl aged five years had severe pain in the right toe, one day after crisis. Two days later the whole foot became livid with similar involvement on the left side, this was noted also upon the right knee and elbow and upon the left shoulder. The lividity faded from the elbow and knee, but the other affected parts became gangrenous with the formation of vesicles. Two months later, the following lesions were noted: On the back there was an ulcer 10 cm. by 9 cm. covered with healthy granulations. Complete disorganization of the left foot was noted, while upon the right foot the great toe was gangrenous, with denudation of the head of the first metatarsal bone; the terminal, phalanx of the second toe and the second and third phalanges of third toe were likewise destroyed. Pulsation in the popliteal artery was not discernible on the right side. The left foot was amputated. On the right side the first metatarsal and the cuneiform bones were removed. This is one of the exceptionally rare cases of postpneumonic gangrene in a child.

In the adult spontaneous gangrene as a complication has been recorded by Benedict (gangrene of the foot); by Grimm (gangrene of the fingers), and by Nielsen (gangrene of the fingers and toes). In the case just described, the little girl recovered.

Parotitis and Submaxillary Adenitis.—Parotitis is so frequent a complication of croupous pneumonia that the literature on this part of the subject is of rather an extensive character, and a detailed study of individual cases is now about to be undertaken.

Dulles[110] has but recently had recorded a case in a woman aged eighty years, the occurrence of a swelling of the right parotid gland following the crisis. All the symptoms of parotitis were present and later the left parotid became similarly involved, with all the characteristic symptoms in evidence. Dulles recognized in this case an illustration not of a second infection, but of an autointoxication, which pursued its course without suppuration.

Anders has reported a case in a woman of middle age with bilateral parotitis, and the same physician describes parotitis of the left parotid gland in a man aged sixty years. In both cases there was hyperpyrexia and delirium. Both patients recovered.

In Thorp's[111] case, bilateral submaxillary involvement was reported. The patient, a male aged fifty, recovered. This complication appeared upon the fifth day of the disease. Upon the 18th day of croupous pneumonia, Miller and Stewart[112] present the history of a case, where a decline in the fever and abatement of the symptoms was succeeded by a left-sided parotitis. Suppuration rapidly followed; incision was performed, and drainage effected. When this complication was most intense, the leucocytes numbered 22,000. On the 37th day death resulted from cystitis.

Coleman's[113] case was a male patient aged thirty years, who was addicted to alcoholic excesses. The process of resolution began upon the 14th day and proceeded rapidly. The right parotid showed swelling, tenderness and redness and continued to increase in size. There was a gradual subsidence of the inflammation and no suppuration resulted.

Halladay's[114] patient, a youth of seventeen years, gave an axillary temperature of 106° F., associated with marked cerebral disturbance. On the seventh day of the disease the left parotid by gradual swelling attained an enormous size and by the 11th day every vestige of inflammation had disappeared. There was no suppuration. The patient recovered.

The case of a woman aged seventy-six years, is reported by Talley and Gittings.[115] In this case the characteristics of senile pneumonia were in evidence. The left parotid offered symptoms of inflammation upon the seventh day, which rapidly increased. The edema extended from the left malar prominence to the left clavicle, involving the neck, both anterior and posterior. Tenderness was elicited, and the gland pitted on pressure. Spontaneous rupture occurred on the 10th day, much pus was evacuated, and there was a rapid disappearance of the swelling. The patient made an uninterrupted recovery. A case is recorded by Eshner[116] of a female of seventy-one years, in which crisis did not occur. Swelling and pain manifested themselves in both parotids on the eighth day. The temperature that had been declining, again became elevated. Death occurred four hours later. A severe case of croupous pneumonia in a girl aged eighteen, described by Miller[117], showed a high temperature and a profound delirium. Great restlessness was observed, this possibly depended upon a previous chorea, which now became intensely exaggerated. A loud, blowing systolic murmur which was transmitted, was discernible at the apex. There was marked accentuation of the second pulmonic sound. On the ninth day the temperature declined by lysis with abatement of the symptoms. Enlargement and suppuration of the left parotid necessitated incision and drainage. Upon the 11th day there was again an elevation of temperature, with the development of an empyema. Aspiration on the 23d day resulted in the evacuation of one pint of a thick creamy pus. Culture showed the presence of streptococcus pyogenes, and staphylococcus aureus. Death took place on the 27th day. The leucocytes which numbered 17,000, increased with the parotitis to 27,000, then fell almost to normal, to rise again to 18,000 at the height of the empyema. It is probable that endocarditis was another complication of this case.

Morris[118] has recorded a case of parotitis in which a man of fifty-eight years suffered a severe attack of croupous pneumonia, and three days after the crisis, pain and swelling were experienced in the parotid region of the left side; three days later the right parotid became involved. At the expiration of six days the right parotid presented intense swelling, redness and fluctuation. Incision of both glands was resorted to and much pus was evacuated. Bacteriologically there was obtained a pure culture of the *staphylococcus pyogenes aureus*. Recovery ensued.

Carslaw[119] describes two cases both in elderly female subjects. The first of these was a woman aged fifty years. Crisis occurred upon the seventh day. Upon this day pain and swelling were experienced in the right parotid region and for six days the swelling augmented; and without any evidence of suppuration, it gradually subsided. Convalescence was slow but complete.

The second case reported was that of a woman aged sixty years. Lysis occurred upon the seventh day. The disease followed an attack of bronchitis. On the third day an exhausting diarrhea set in, which lasted 19 days. On the 13th day pain and swelling were felt in the left parotid region, associated with a slight elevation in the temperature (101° F.). Eventually the swelling extended from the malar prominence to the posterior border of the sterno-mastoid muscle. For two days the parotid gland continued to increase in size, but as gradually underwent a decrease without any evidence of suppuration.

The case of a male, aged forty-seven years, in which there suddenly appeared an enormous swelling in the region of the left parotid gland, is discussed by Duplay.[120] The entire side of the face became edematous, accompanied by intense pain that was aggravated by pressure or by movement of the jaws. There was elevation of temperature and evident systemic depression.

The following case is presented by Hobbs.[121] A male, aged forty-one years, developed delirium about the 14th day. Pain, redness and tenderness in the left parotid region. Tumor was resistant, disappeared in four days, without any surgical interference. A pulmonary abscess was present in this case, Hobbs says; thus we can account for parotid tumefaction, long described in connection with menstruation, blenorrhagia, influenza and gout, differing from the serious forms of parotitis which constantly undergo suppuration where the pneumococcus is found associated with pneumonia and occurs suddenly as the fever diminishes, abscesses forming in from 24 to 48 hours.

Hawthorne[122] had a case where crisis occurred upon the 9th day. Ten days after the temperature rose to 103° F.; pain developed at the left angle of the jaw, associated with fulness and tenderness over the left parotid gland which subsided and in three days entirely disappeared.

The cases reported by Kerr[123] and Osler[124] contain a detailed account of the autopsies. Kerr's case occurred in a man of fifty years. On the 10th day the temperature and respiration being normal, considerable pain and swelling evidenced themselves over the left parotid gland. The temperature fluctuated between 97.4 and 97.6. The following day deglutition was painful, and there was swelling in the left tonsil. A dusky swelling presented itself externally which pitted upon pressure. Fluctuation appeared later, pus discharging from the external meatus. On incision a quantity of thick pus escaped. Drops of pus escaped upon incising the tonsil. Insomnia appeared and articular pains developed. Upon the 29th day a pyemic temperature was noted. Four days later petechial spots appeared upon the chest, death following in a few hours. At the autopsy marked bodily emaciation was noted. The anterior aspect of the body and the limbs presented purpuric spots. The left lung was found normal. The right was everywhere adherent, airless, with no appearance of abscess formation. The pericardium was normal. Thickening of the right ventricle and an old thickening of the aortic valve were observed. There was an ulcerated patch on the aortic segment of the mitral valve nearly to the aortic valve. Two recent infarcts appeared in the spleen. The kidneys were normal. The liver slightly fatty. The brain showed a deposit of recent thick lymph in green patches of the vertex. The arachnoid showed an almost ground glass opacity, with small foci of commencing suppuration. Distension of the vessels was observed. The ventricles presented a considerable quantity of turbid serum; there was no direct communication with the ear. The abscess cavity in the neck extended in various directions, leaving the vessels as clearly outlined as though dissected out with a scalpel.

Osler reports the case of a male aged thirty-three years, small of stature and moderately muscular. When admitted to the Philadelphia Hospital, the patient was delirious. No history was obtainable. The tongue was dry, the hands tremulous, and there was marked carphalogia. The temperature was 103° F.; pulse 120 and feeble; respiration 50. Involuntary passage of urine and feces occurred. There was no expectoration and slight icterus of the skin. On the evening of the second day there was noted slight swelling of the left parotid and also a pleuro-pericardial friction sound, which disappeared upon the third day. On the fourth day a soft systolic murmur was audible at the apex, which grew gradually louder and rougher. There were no cutaneous ecchymoses. No sputum was obtainable. Death occurred on the sixth day after admission. Upon postmortem there was found slight cutaneous icterus with a swelling of the left parotid gland. The left pleura contained one and one-half pints of a sero-purulent fluid. A thick fibrinous exudate glued the upper lobe of the left lung to the pericardium. Both parietal and visceral pleural coverings were bathed with a thick creamy material. The pericardium was normal. Dilatation of the right chambers of the heart occurred, and were filled with firm blood clots. There was no endocarditis. The muscular substance was somewhat relaxed and turbid. Upon examination of the left lung two-thirds of the lower lobe was airless, dark in color and collapsed; the upper third had undergone red hepatization, the adjacent bronchi being filled with tenaceous exudate. The upper lobe was slightly congested and crepitant. Congestion extended to the base, but contained little blood or serum. Congestion of the right lung at the base, bronchial glands enlarged and tumefied. Spleen was softened and enlarged and contained two wedge-shaped infarcts. Cloudy swelling was present in the liver. The stomach was small and the intestines normal. The large intestine presented patches of deep congestion. The left parotid gland was deeply congested, the interlobular septa infiltrated with blood, with here and there distinct foci of pus. The brain presented no special changes.

Suppuration in the soft parts is mentioned in two instances by Preble. The first case occurred in a man who a short time previously had typhoid and pneumonia, later erysipelas. Fifteen days subsequently after repeated chills, he became delirious and suffered with pain in the right knee and left shoulder. At this time the patient was noticed to be very deaf. Pneumonic consolidation occupied the right upper and part of the middle lobe with friction in the lower part of the axillary region. The liver was enlarged and tender by pressure. The urine was 1010 and contained a large amount of albumin, and granular and epithelial casts were found. The joints were tender and there was swelling of the right knee and left shoulder. On the seventh day an abscess was opened on the back in which pneumococci were found; three days later an abscess on the scrotum was found to contain pneumococci. The patient died upon the 12th day.

The second case was that of a child fourteen months old. The onset of the infection was announced by convulsions. Pneumonic consolidation occupied the left lower lobe. On the third day there was a swelling of the left hand; upon the eighth day there was a circumscribed swelling, red, tender and painful, in connection with the humerus, just above the elbow joint; also swelling and redness of several of the small points of the left hand. This swelling proved to be a periostitis due to pneumococci. Several other abscesses developed later in other parts, and were opened in the course of the following weeks. The child had a second pneumonia shortly after resolution occurred with otitis media as a sequel, but finally recovered. No blood examination was made.

Suppurative panophthalmitis was observed in two instances by Preble, but this observer has failed to give the clinical data of this interesting complication. He further states that he has been unable to find in the literature references of similar cases.

Thyroiditis.—Lion and Bensaude[125] treated a male patient, aged forty-nine years, who presented a good personal and family history. The man suffered from the disease over a rather protracted course; defervescence was tedious and incomplete until the 17th day. Convalescence was interrupted after the lapse of one week by an elevation of temperature to 102.9° F. In a few days the symptoms of pain, tenderness and swelling evinced themselves, and an abscess developed in the left lobe of the thyroid gland. Incision followed, and the pus was found to contain pneumococci in pure culture.

Prioleau[126] had under his care a man advanced in years, who developed a suppurating orchitis, three days subsequent to the onset of an insidious pneumonia. After a chill and fever, the left testicle became painful. An abscess formed and revealed the existence of diplococci. Recovery followed; however, one month later the patient suffered a relapse, with a resulting fatal termination.

Broadbent[127] records a case of suppuration of the bronchial glands occurring in a boy twelve years old. On the seventh day of a severe but characteristic pneumonia with the pulmonary lesion located at the right base, an abortive crisis occurred; while the temperature fell to 103° the patient was obviously worse in all respects, the pulse rising to 144° and the respiration increasing to 60. On the 9th day physical examination showed the lung resonant and the penetration of air throughout with an entire absence of râles. The temperature rose to 105.6° and the patient was delirious and muttering. Wet packs reduced the temperature and kept it at 103°. Violent paroxysms of unproductive cough occurred frequently, at times lasting two or three hours, and caused vomiting. Talking, eating, or turning on the right side provoked the paroxysms. Finally a rigor and elevation of temperature announced suppuration, and shortly one dram of pus was suddenly expectorated which was repeated in six days, then becoming copious for three or four days. Pressure upon the root of the lung and the displacement of the heart to the left, were found by physical examination to have disappeared. Recovery took place in 10 weeks.

Tardieu[128] describes a curious case where a loud systolic murmur was found at the second interspace on the left and was transmitted toward the axilla. The bruit, dulness, and bronchial breathing at the left apex persisted. Later there was the disappearance of the bruit, which was replaced by a soft hemic murmur appreciable at the apex. The abnormality presented in this case was due to the compression of the pulmonary artery. Undoubtedly the bruit resulted from the pressure exerted by enlargement of the glands.

Hemoglobinuria as a complication is exhaustively described by Nash.[129] His patient was a girl of sixteen years, and a systolic bruit was audible at the apex of the heart. The heart and lung were subjected to poulticing with the internal administration of brandy, milk and quinine. On the second day the following was the urine report: Dark yellow; specific gravity 1030; reaction acid; no albumin. The urine passed in the early morning of the third day was blood-stained, with a decrease in the quantity voided; digitalis, nitrous ether, and ammonium acetate were now administered. Severe pains in the back and limbs were complained of, and there was nocturnal delirium. Expectoration ceased upon the fifth day; the physical signs, however, persisted, and there were noted dyspnea and a pronounced anemia. The urine resembled porter, and widely diffused pains were present. Microscopically the urine showed an absence of blood corpuscles, but the presence of many bright red granules arranged singly. A few granular casts with granular debris were disposed of in rows. Subjecting the urine to boiling resulted in a chocolate-colored precipitate, amounting to one-third of its entire volume. This precipitate floated on the surface for several hours. The test with guaiacum yielded a blue coloration. On the seventh day the urine offered a specific gravity of 1020, was smoky, cherry-colored, and gave a precipitate of albumin, amounting to one-sixth the total quantity of urine. Crisis occurred on the seventh day, resolution began and the kidneys augmented the same amount of their excretion. The lungs cleared, the hemoglobinuria gradually vanished, and after the eighth day no evidence of blood, coloring matter, or albumin could be detected. For several weeks there persisted the presence of hemic murmurs over the base of the heart, and at the apex. With the exception of the occasional presence of crystals of calcium oxalate, the urine was otherwise normal. The patient recovered.

One of us (Hare) not long since had under his care a married woman of forty years who developed a deeply-seated croupous pneumonia of the left lung, which presented very obscure physical signs. The patient speedily became violently delirious and on the fourth day developed an intense hemoglobinuria. Death occurred on the sixth day of the illness.

Underwood[130] describes a case of *purpura hemorrhagica* occurring in a child four and one-half years old. The child's family history was distinctly tuberculous and there was a history of dry pleurisy two years before. Pneumonic consolidation was located at the left lower lobe. Upon the 10th day crisis occurred; convalescence progressed favorably, but a desquamation involving the whole body was noticed. About a month subsequently epistaxis occurred which became persistent for twenty-four hours; there was also hemorrhage from the bowels. Purpuric spots were numerous on the skin of both upper and lower extremities, especially on the legs below the knees, also upon the chest, abdomen and back. The hard and soft palate, lips, and dorsum of the tongue showed purpuric spots.

Epistaxis occurred at frequent intervals and the patient became quite anemic; the hemoglobin percentage fell to 50 per cent. In the course of ten days the bleeding was controlled, the resolution of the pneumonic area was slow and a few days subsequently hemoptysis occurred together with oozing of blood from the lips and mouth and blood clots were occasionally sneezed from the nose; finally an ulcer formed on the side of the tongue. There was some extravasation of blood into the conjunctiva of the right eyelid, but at no time were there evidences of hematuria or albuminuria.

A case of *desquamation of the skin* is reported by Lloyd.[131] The patient was an adult male. On the eighth day of the disease (crisis occurred on the ninth), the upper chest and the clavicles were the seat of a vesicular eruption. Three days later this eruption invaded the entire skin surface of the body, and was attended with intense itching. On the ninth day of the eruption, the cutaneous phenomena entirely disappeared, and was followed by desquamation, covering a period of two months' duration. The patient had not been lately exposed to the virus of scarlatina. The symptoms associated with the vesicular eruption included a fall of temperature to the normal on the day preceding the eruption, the absence of angina and of albuminuria. The patient suffered an attack of scarlatina in childhood.

Underwood[132] also describes a case of desquamation which was followed by purpura hemorrhagica.

Several theories have been advanced to explain the occurrence of icterus in croupous pneumonia, some observers contending that the jaundice is hepatogenous, others that it is hematogenous. Banti[133] is inclined to the latter view, and explains the phenomenon by attributing a peculiar hemalytic power to the diplococcus pneumoniæ. He further states that cultures from the cases presenting jaundice produce by animal experimentation hemoglobinuria, but the same procedure in the cases without icterus does not produce a like result.

Preble[134] accounts for the frequent association of jaundice and croupous pneumonia in some epidemics to the virulence of the infective agent, and also contends that jaundice affects the course of pneumonia by the influence which it exerts upon the nervous system, the heart, the gastrointestinal tract and the kidneys. The effects upon the sensorium produce stupor, which appears very early, lessens the sensibility, excites delirium, and manifests itself sometimes by coloring the sputum greenish.

Venous stasis, with compression of the fine bile capillaries has been suggested, but is not found at autopsy to be the causative factor. Catarrh of the duodenum and extension to the bile-ducts is the condition most frequently found postmortem.

Otitis Media.—The possible routes of infection of the middle ear are given by Moos[135] as hematogenous, extension through the Eustachian tube or tympanic membrane, or by entrance through the petrosquamous fissure in children.

Hemotogenous infection is thought by Lermoyez and Helme[136] to give rise to a more violent infection of the middle ear than that resulting from extension through the Eustachian tube; they also believe that such infections are more acute in character. These deductions are borne out by clinical experience; the frequent association of otitis media and general pneumococcus infection, especially when this infection results in a meningitis is striking; in such cases purulent otitis media usually results, while in those due to local extension are usually non-purulent. The most frequent mode of infection is probably through the Eustachian tube, a variety of middle ear involvement quite common.

Meltzer[137] states that in children otitis media is a most common complication of croupous pneumonia; the otitis develops usually at the onset of the disease, becoming manifest by earache, lasting a day or two, and then lessening or disappearing, but never outlasting the pneumonia and never accompanied by purulent discharge from the ear. The symptoms common to purulent otitis media are usually headache, earache, restlessness and fever; perhaps vomiting delirium and coma.

Croupous Pneumonia in Pregnancy.—Transmission of croupous pneumonia from the mother to the fetus is dwelt upon by Netter[138] and has already been referred to.

Apyrexia and Hyperpyrexia.—Hanford reports a vigorous man of fifty-six years, strong in mind and body, who feeling ill remained in bed. He had an evening temperature of 100.5° F., with cough and signs and symptoms indicative of bronchitis. Upon two mornings the thermometer registered 99.8° F.; respiration 32, and pulse 104. The cough was frequent, irritating and increased by movement. There was general prostration, abundant, sticky, fibrinous sputa markedly blood-stained and of a bright red color. Friction sounds over a limited area could be appreciated at the axillary region below and posterior. The temperature never exceeded 100.5°. After the 10th day it was normal, and the patient was convalescent. The physical signs appeared typically.

Wunderlich and Lebert observed a case in which the fever only reached a height of 100° F. on the sixth day of the disease.

Hawkins[141] collected statistics of 1904 cases. Of 15 of these cases four recovered. In the fatal cases, the highest temperature recorded was 108.8° F., at one time the thermometer marking 108.4° F.

Statistics in regard to the frequency with which different parts of the lungs are affected are of some interest. The following facts have been collected by Meltzer[139] from the St. Petersburg Marien Hospital: Of 4252 cases, 55.7 per cent. showed right lung involvement and 34.3 per cent. of the left. Both lungs were affected in 9.7 per cent. Crisis occurred in 63 per cent. and lysis in 34 per cent. Meningitis, which was in 17.6 per cent., invariably proved fatal. Pleuritis occurred in 20.4 per cent. of which 80 per cent. ended in death; pericarditis was found in 10.7 per cent. Total death rate was 9.4 per cent.

Ruge[143] observed that in seven rather rare cases of pneumonic relapse the existence of an afebrile period between the attacks lasted from four to 15 days. During this time there was an apparent convalescence. There was partial disappearance of the physical signs. Duration of the relapse varied from four to eight days. The second attack showed a constant predilection for the part of the lung structure primarily attacked. Wandering pneumonia pursues a more protracted course. The frequency of relapse may be set down as from 0.18 per cent. to 0.45 per cent.

From a study of the literature quoted in this paper we believe that the complications and sequelæ of croupous pneumonia, independent of the cases due to mechanical causes, are best studied and classified as pneumococcic infections. Pathology has not aided us in discriminating as to whether the complicating conditions which are detailed occur primarily with the initial invasion of the organism, or if we are confronted with a general re-infection dependent upon blood contamination with the pneumococcus.

In studying these complications and sequelæ, we may group them arbitrarily into certain classes and divisions that make them easily remembered. The series is composed of six classes. The first class is made up of the Serous Membranes.

Class A.

Serous Membranes	Pericardium	Serous and purulent pericarditis.
	Pleura	Serous and purulent pleuritis and that affecting the diaphragmatic pleura.
	Endocardium	Endocarditis. Malignant endocarditis. Ulcerative endocarditis, endocarditis with or without meningitis, or cerebrospinal meningitis.
	Synovial Membranes	Serous Arthritis. Purulent Arthritis. Osteo-Arthritis.

The infection by the pneumococcus may cause pathological changes in the central nervous system by the action of the toxins on the nerve centers.

Class B.

(*a*) Cerebral and Cerebro-Spinal System	Cerebral Pneumonia. Meningitis. Meningitis due to pressure of exudate. Cerebro-spinal Meningitis. Hemiplegia. Paralysis. Cerebral abscess. Aphasia.
(*b*) Toxic action on the Nerve Centers	Delirium. Mania. Convulsions. Cardiac asthenia, resulting in delayed resolution, abscess and gangrene. Brachial Neuritis Bilateral polyneuritis. Trophic Disturbances (Herpes Zoster). Temperature Disturbances (Hyperpyrexia) (Sub-normal ranges). Albuminuria and Nephritis.
(*c*) Neurotic tendencies	Retention of urine. Tetanoid and Choreiform phenomena.

Changes in the blood and intra-vascular formations.

Class C.

(*a*) Intra-vascular (Thrombosis and Embolism)	Pulmonary gangrene, abscess and bronchiectasis. Spontaneous gangrene of lower extremities. Embolism of right lenticulo-optic arteries. Phlegmasia Alba Dolens. Renal and Splenic emboli. Embolism of the brachial veins.
(*b*) Hemic Changes	Purpura Hemorrhagica. Hemoglobinuria.

Class D.

Infection of Glands and Glandular structures	Parotitis. Suppurative Parotitis. Bronchial Adenitis. Submaxillary Adenitis. Thyroiditis. Orchitis. Ovaritis and Abscess. Hepatitis.

Class E.

Infection of Middle Ear	Otitis Media. Purulent Otitis Media.

Class F.

From Mechanical Interference	Edematous Laryngitis Fatty tumor of right auricle. Jaundice, from obstruction of the bile-ducts. Dilatation of right heart from pulmonary obstructions (?) or toxic myocarditis. Delayed resolution and induration from Cardiac Asthenia.

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ON THE CAUSES, VARIATIONS AND SIGNIFICANCE OF THE COLOR OF THE FECES.*

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In view of the growing appreciation of the importance and value of the systematic examination of the feces it may perhaps be of interest to consider somewhat the sources of the fecal color, together with its variations and its clinical significance.

The color of the normal stools of adults upon the usual mixed diet is, it is hardly necessary to say, a brown of varying degrees of darkness. This color, while due in large measure to the presence of modified bile pigment, is nevertheless the result of a number of causes, and any one of these may under certain conditions become the chief factor in determining the hue. In considering the elements which go to make up the color it is convenient to group them under the following heads: (1) Digestive Secretions; (2) Food Residue; (3) Discharges from the Intestinal Mucous Membrane; (4) Accidental Ingredients, *e.g.*, Drugs, etc.

(1) *Digestive Secretions.*—That these secretions take a considerable part in the making up of the fecal mass is evident from the fact that in conditions of starvation or fasting, when the intestines contain no food whatever, the feces, which then consist only of the digestive secretions, mucus, desquamated epithelium and bacteria, are of considerable quantity and of dark, pitch-like appearance.[1]

Of the various digestive juices the bile is the only one which takes any considerable part in furnishing color to the stools. Its rôle, however, is so important that it may be well to consider for a moment the history of its coloring matter from the time of its formation in the liver.

The bile as it is secreted contains a single pigment—bilirubin. A part of this bilirubin is promptly oxidized, either in the bile passages or soon after reaching the intestines, into biliverdin and several allied bodies. In meconium and in the stools of nursing infants, where putrefactive changes are slight or absent, biliverdin and bilirubin respectively appear as the normal ingredient. After the first few months of life, however, the bile pigments, under the influence of the putrefactive bacteria in the intestine, undergo a process of reduction to hydro-bilirubin and thenceforth never appear as constituents of normal stools. This hydro-bilirubin then, a reduction product of bilirubin, constitutes the normal yellowish-brown pigment of the feces. It was described in 1871 by Vanlair and Masius[2] who called it stercobilin. Soon afterward this was shown by Maly[3] to be identical with the urinary pigment urobilin. The change from bilirubin takes place usually in the small intestine, and both Frerichs and Nothnagel[4] have demonstrated by postmortem examination that under normal conditions, neither bilirubin nor biliverdin, as shown by their positive reaction to Gmelin's test, are found in the contents of the intestine below the cecum. A certain amount of hydro-bilirubin frequently, and perhaps always, undergoes still further reduction to a colorless body called by von Nencki leuco-urobilin. It is to the presence of this colorless chromogenic body and its gradual oxidation back to hydro-bilirubin that Quincke[5] ascribes the gradual darkening in color which the surface of feces undergoes upon exposure to the air.

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* Read at a meeting of the Society of Internal Medicine, New York, 1902.

It may be said in parenthesis here that this darkening in color upon exposure to the air is explained in a different way by Fleischer[6] who believes it to be due simply to a process of drying and not to any chemical change, and he explains in the same way the very dark color of feces which have remained for a long time in the rectum.

Under certain circumstances, to be spoken of later, most or all of the hydro-bilirubin may be reduced to leuco-urobilin and then the stools may simulate the clay-colored feces of jaundice.

But the bile derivatives are not the only coloring matters supplied by the digestive secretions. Ehrenthal[7] found that in starving dogs with biliary fistulæ—*i. e.*, dogs in which neither food nor bile entered the intestine—dark-colored, pitch-like feces were passed whose color he ascribed to the pancreatic juice. Under normal conditions, however, this secretion probably has little influence in determining the color of the stools.

(2) *Food Residue.*—With the usual mixed diet the food residue plays only a subordinate part in the make-up of the fecal color, but where the food has a pronounced and distinctive color this may modify considerably the appearance of the feces. So, for example, vegetables rich in chlorophyll, such as spinach or lettuce, may give a greenish tint to the dejections and the abundant ingestion of carrots is said sometimes to impart their distinctive color.[8]

In general a vegetable diet produces much lighter colored stools than does a diet chiefly of meat. A meat diet alone is associated with very dark brown feces in which the color is due in part to the conversion of the blood-coloring matter of the meat into hematin (Fleischer[6]). A diet of milk produces the familiar yellow or yellowish white stools.

In infants fed upon breast milk the feces have the orange yellow color of the yolk of egg; the color being due to the presence of unchanged bilirubin, which, owing to the absence of putrefactive processes, is not changed in the intestine. With babies fed upon cow's milk, however, the stools have regularly a lighter, yellowish white color.

By the action of the alkaline contents of the intestine the red coloring matter of certain berries such as blueberries and huckleberries is so changed as to give to the stools a dark brown or slightly greenish hue. Red wine is said to produce a somewhat similar color.

Quincke[5] has called attention to the fact that the degree of translucency of the ingredients of the feces has some effect upon the color; that with the same quantity of coloring matter the stools appear the lighter the more they contain of such highly refractive bodies as fat droplets, crystals and gas bubbles.

(3) *Discharges from the Intestinal Wall.*—Among those which may modify the color of the dejections are mucus, pus, serum and blood.

Mucus, although so common a constituent of pathological stools, does not usually give to them a distinctive color. When in large quantities, however, and when thoroughly mixed with the feces these have a glistening, grayish or yellowish gray appearance.

Pus will in rare instances give a distinct yellowish or yellowish-gray tone to fluid stools. That this may occur two conditions are necessary; first, that the pus be in large amount and, second, that it come from the lower part of the large intestine, since pus originating higher in the intestine is so rapidly changed as to be unrecognizable in the stools by the naked eye. It is rarely seen therefore in the stools except as the result of the rupture of some perirectal abscess.

Serum, aside from giving to feces a watery consistence, will also impart its own straw color when the usual fecal pigment is lacking as, for example, in the rice-water stools of cholera, in which there is usually cessation of the biliary secretion.

Blood can give to the feces a great variety of tints depending upon its amount and upon the degree of change which it has undergone. This latter corresponds usually to the length of time which the blood has remained in the intestine; so that, in general, blood from the rectum or sigmoid flexure, which is promptly discharged, retains its normal color, whereas blood from the small intestine will have undergone such change, by the conversion of its hemoglobin into hematin, that it presents an appearance suggestive of coffee grounds or of tar. The appearance of the blood indicates the location of the bleeding, however, only in a very general way, since with especially active peristalsis blood from high up in the small intestine may be discharged so promptly that little change will have occurred.

If the blood be in small quantity and be intimately mixed with the feces it may give to the stools an orange tint suggestive of paprika (Nothnagel[10]). Finally, it must be remembered that certain articles of diet, *e.g.*, cocoa, huckleberries, etc., may produce in the stools an appearance which may easily be mistaken for disorganized blood.

(4) *Accidental Ingredients.—Drugs.* Among the most interesting of the variations in the color of the stools are those produced by the use of certain drugs; and concerning certain of these changes there is much popular misapprehension.

Bismuth preparations produce a blackish or dark green color by the reduction of the ordinary salts (sub-nitrate, sub-carbonate, etc.,) to *bismuth oxydyl* and not the bismuth sulphide as so commonly believed (Quincke[5]).

Calomel, contrary to the general impression, causes greenish stools (in adults at least) only infrequently and then, Quincke believes, not by the formation of sulphide of mercury but, apparently, by checking the putrefactive processes and by so preventing the reduction of all the bilirubin; so that instead of hydro-bilirubin the feces contain the greenish biliverdin.

Iron usually does not affect the color of the stools until they have been exposed to the air for some time, when they become blackish gray, not from the presence of iron sulphide but by the oxidation of some organic compounds of iron (Quincke).

Rhubarb, Senna and *Santonin* are said sometimes to give to the feces a yellow color.

Methylene Blue causes no discoloration of the stools as passed but within a few minutes these take on a bluish green tint which gradually deepens.

In this connection it is well to emphasize the fact that many stools, both those of infants and of adults, change their color very materially upon exposure to the air. Under such circumstances it is important to compare the color of the interior of the fecal mass with that of the surface.

Bacteria. In certain of the green diarrheas of children Lesage[10] has found a bacillus which develops in cultures a green pigment and which, he believes, stands in casual relation to the diarrheas.

Salus[11] asserts also that *bacillus pyocyaneus* can under certain circumstances give a greenish color to the stools.

Clay-Colored Stools.—The association of grayish white or "clay-colored" feces with obstructive jaundice has long been noticed and their lack of color, very naturally, ascribed to the absence of the bile coloring matters. Some years ago, however, Bunge[12] announced that these acholic stools owed their clay color not to the absence of bile but rather to the presence of an excessive quantity of fat and he showed that by extracting this fat with ether such stools assumed a much darker color, which color he attributed to the presence of hematin and sulphide of iron from the food.

The fact that the feces in obstructive jaundice contained enormous quantities of minute needle shaped crystals had been noticed before. Gerhardt[13] believed these to be crystals of cholesterin. Their true nature as fat crystals had been proved, however, by Oesterlein[14] Stadelmann,[15] and others. Franz Müller[16] in some very careful investigations showed that, whereas in normal feces only from seven to 10 per cent. of the ingested fat could be recovered, in obstructive jaundice the feces contained from 55 to 78 per cent. of the total quantity of fat eaten. That the gray color of such stools was due, however, to this fat and not to the lack of bile remained for Bunge to show. His observations were soon verified by Fleischer[6].

Clay-colored feces, in cases of jaundice, in which neither bilirubin nor hydro-bilirubin could be found, would invariably, upon treatment with ether, show a much darker color. In two cases of obstructive jaundice recently examined by me this return of the dark color of the stools upon removal of the fat was very striking. Fleischer was unable, however, to demonstrate iron sulphide in such stools and believes the color to be due to hematin alone. But Ehrenthal[7] has shown that the bile is not the only digestive secretion which gives color to the feces, and it seems probable, therefore, that this resulting color may depend upon several causes.

Colorless Stools without Jaundice. It has also been noticed for a long time that typical, gray, clay-colored feces are occasionally to be seen where there is neither jaundice nor other evidence of biliary obstruction. Such stools have been seen by Nothnagel[17] in leucemia, in cancer of the stomach and the intestines, in intestinal catarrh in children, and especially in cases of advanced phthisis. Von Jaksch[18] has noticed them in intestinal tuberculosis, chronic nephritis, chlorosis and scarlatina. Berggrün and Katz[19] have called attention to their great frequency and their diagnostic value in chronic tuberculous peritonitis in children.

Such light-colored stools seem, as regards their causation, to fall into two fairly distinct classes. (1.) Those in which the lack of color is due to the great amount of fat present; (2.) Those in which most of the bilirubin has been reduced beyond the stage of hydro-bilirubin to the colorless body leuco-urobilin (leuco-hydro-bilirubin).

An excess of fat in the feces may result from several causes other than the lack of bile. (a.) Ingestion of an unusually large quantity of fat even with normal digestion; (b.) Disturbances of the fat absorption in the small intestine; as, for example, with atrophy, amyloid degeneration or tuberculosis of the mucous membrane, and especially by the occlusion of many lymph channels such as occurs with caseation of the mesenteric lymph nodes in *tabes mesenterica* and in chronic tuberculous peritonitis. Berggrün and Katz have shown that the light colored stools so frequently seen in chronic tuberculous peritonitis in children depend upon an excessive amount of fat and they regard such stools as of considerable diagnostic significance, since the presence in them of hydro-bilirubin is proof that the fat is not due to the absence of bile; (c.) Finally, it is possible that the absence of the pancreatic juice from the intestine may occasionally cause such fat stools. That it always, or even usually, does so however is certainly not the case. Most of the clinical evidence is entirely opposed to the view that disturbed pancreatic function is associated with an increased amount of fat in the feces (Nothnagel).

Of the second class of clay-colored stools without jaundice—those due to the reduction of bile pigment to the colorless body leuco-urobilin—much less is known. It is certain that not all such stools contain an excess of fat. Quincke[5] states that this reduction to leuco-urobilin may be so great that for weeks at a time, without obstruction to the bile, almost colorless feces may be discharged in which the extraction by alcohol furnishes an abundance of hydro-bilirubin. The conditions favoring this abnormal reduction of bile pigment to leuco-urobilin are by no means clearly understood. They seem to be connected, usually, however, with increased putrefactive changes in the intestines.

The separation of these two types of colorless stools is usually not difficult, since the second class can be identified by the lack of an increased quantity of fat and by the prompt darkening of color, upon treatment with acid alcohol, as the leuco-urobilin is oxidized to hydro-bilirubin.

Green Stools.—In conclusion, a few words concerning green colored stools. These, except in those infrequent cases in which the color is due to bacterial action or to the food, are always caused by the presence of biliverdin.

This pigment may be said never to occur as a normal constitutent of the feces except in meconium. In infants, however, where the putrefactive processes in the intestines are slight and where bilirubin is found normally in the feces, biliverdin will appear upon slight provocation. The green color may be present when the stool is passed or may develop only after it has stood for some time.

Biliverdin is found in the stools of children in diarrheas of many sorts. Such stools are usually alkaline in reaction and both Pfeiffer[20] and Biedert believe that the appearance of biliverdin is associated with increased alkaline reaction of the contents of the upper part of the small intestine.

In adults green stools are of much less frequent occurrence, but are occasionally seen in certain diarrheas. Fleischer believes that they occur only where there is inflammation with increased peristalsis of *both* small and large intestine and never when one or the other alone is involved, since with normal peristalsis in either large or small intestine there would be time for the reduction of the biliverdin to hydro-bilirubin.

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Tuberculous Celebrities.—Numerous victims of tuberculosis are found in the ranks of the celebrities, according to a recently compiled list. Of authors and actors may be mentioned: Molière and Desclée, the first "Dame aux Camélias;" poets and men of letters, Malfilâtre, the philosopher Guyau, Shelley, the novelist Louis Deprés, etc.; physicians, Bichat, Lënnec, etc.; while musicians may be represented by Chopin, the friend of George Sand, who has described the early phases of the disease in this matter.

SUTURE OF THE SOLID VISCERA.

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In considering this subject I refer especially to the liver, but the same principles apply to the spleen and kidney. Looking over the literature we find that little headway has been made in suturing the liver. The chief danger is hemorrhage. It seems that practically all attempts to suture the liver have thus far been aimed towards a direct suture, as it is used in other tissues of the body. At present the only safe method of dealing with a wound of the liver is by packing or connecting with the surface. Direct sutures have been recommended and have been successful in some instances, but we have every reason to believe that the cases in which the hemorrhage was controlled by direct suture would not have proved fatal had no sutures at all been applied. In studying the liver we find that the vessels are sparsely distributed. The wound of the liver which does not involve one of the large veins, it is reasonable to suppose, would be like a wound of any other part of the body which did not involve a large vessel, in that the hemorrhage would cease of itself. If a large vessel is involved which cannot be safely tied, then the pressure of sutures which control this hemorrhage must be, in a measure, proportionate to the blood pressure. A study of the liver will at once convince an investigator that direct sutures, unless the wound be in the fibrous portion near the edge, will be of no value. This has been practically admitted by all writers. Most of them have

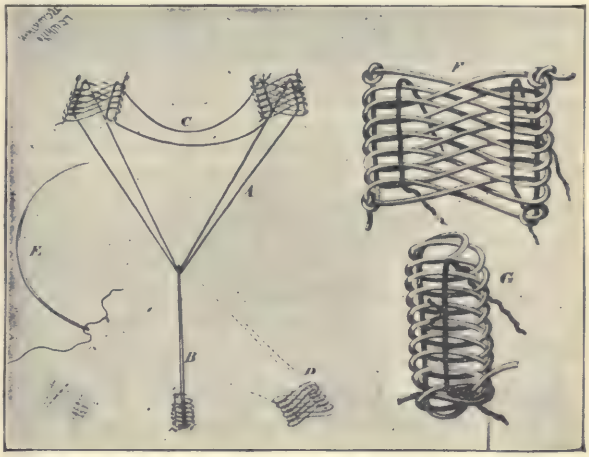

Fig. I. Mechanical drawing of the Y stitch. (A) Long quilt suture placed at the outer edge of catgut supports. (B) Loop thrown around the deep quilt suture and supported on the opposite side by a single catgut support. (C) Superficial quilt suture passed through the inner edge of the catgut support. (D) Dotted lines showing the loop necessary in case the cut is entirely through the liver. (E) Long, slender, round, curved needle. (F) Double catgut mat for support of two sutures. (G) Single catgut mat for support of the anchor stitch.

agreed that it is useless to depend upon anything except Glisson's capsule. Others have used quilt sutures; some have used decalcified bone, but they have been found to produce suppuration, and tear through as if no support had been used. Beck has recommended and used strips of fascia, or tendon. After thoroughly considering all the work which has been done on the liver, Beck concludes that at present we must hope that some suture material will be devised which will be broad enough to hold liver tissue and yet which will be absorbable.

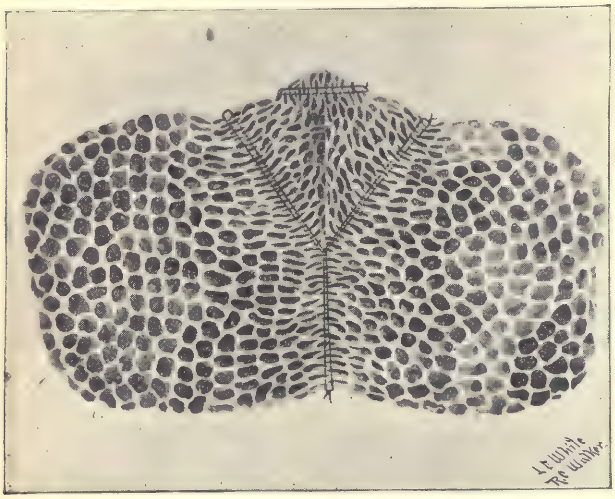

Fig. II. A section of the pith of a gourd sewed with the Y-suture and superficial quilt suture showing the direction of the stitch pressure by the compression of the pores.

Within the past few months I have been making some experiments with suture of the liver. I am thoroughly convinced that after we pass Glisson's capsule the softer structures of the liver have no more value in retaining sutures which are to control and counteract blood pressure than so much mush. I consider it impossible, therefore, for any suture to be applied directly to the liver tissue with a reasonable hope of controlling the hemorrhage. Bridge builders and carpenters, centuries ago learned to take advantage of angles which brought the pressure and weight to bear upon the material in an indirect manner. In this way structures are built, large roofs are sustained, immense bridges are suspended with perfect safety, which otherwise would be impossible. While the method I suggest is immature and possibly may be only the beginning of a method, I am sure that the liver, if it is to be sutured at all, must be sutured by some method which involves the principles suggested. The accompanying cuts represent the diagram of a method which is mechanically successful in suturing liver tissue. You will notice that by this method all the pressure comes upon Glisson's capsule at three or four points, which is protected by a weave of catgut. The pressure is all toward the center of the incision and obliterates all space at the bottom.

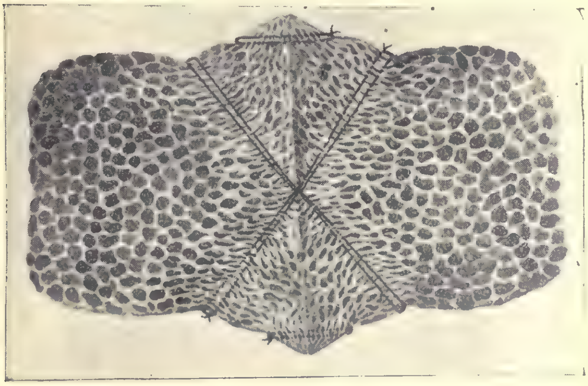

Fig. III. X-suture, applied in the same manner after a cut entirely through the liver substance.

Two sutures are used, one being applicable to an incision which does not penetrate the liver entirely, and the other is applicable to wounds in which the liver is severed through and through. One we may call the Y-suture, the other the X-suture. The Y-suture is placed as follows: A round curved needle, at least four inches long, armed with catgut or silk, is passed through the catgut support to the bottom of the incision, comes out on the other side, passes through another catgut support, re-enters through the support of the same side, goes back parallel to the other stitch and comes out through the support from which we started, making a quilt suture. A suture is then passed from the opposite side of the liver, either straight through or indirectly, as may be convenient, includes the two threads at the bottom of the cut in its loop, comes out on the bottom of the liver and again both ends passing through a single catgut weave are tied in the form of a quilt suture, thus drawing the other suture well into the bottom of the cut. The first suture is now tied and any amount of pressure

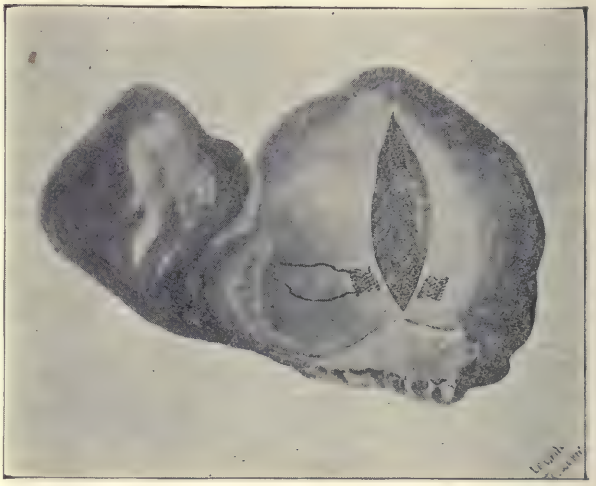

Fig. IV. A sheep's-liver with the catgut support and the deep quilt suture applied ready to tie with the anchor stitch from the under side thrown around it.

can be used, for the line of pressure is not against the suture, but is upon the catgut supports. Thus the bottom of the wound is brought in absolute apposition and any amount of pressure desired may be used. This may not bring the surface of the liver in as close contact as is desired, therefore, a second quilt suture is passed through the edges of the support, nearest the wound, simply taking in the capsule. In this way the tissues are absolutely brought in contact, and as much pressure can be brought to bear in closing a wound of the liver as in any other part of the body.

In closing a wound of the liver which extends entirely through its substance, a modification must be used. Instead of the single suture which goes into the bottom of the liver, a second quilt stitch is passed through both sides on the bottom, the same as the Y-suture above, interlocking the two sutures to the center of the wound. In this way the pressure is brought to bear in a very effectual manner.

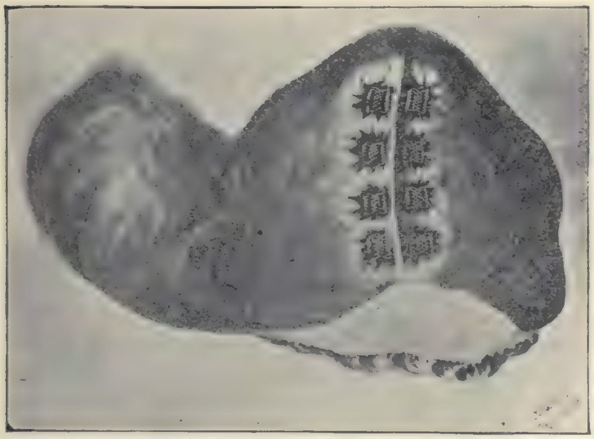

Fig. V. A sheep's-liver which has been sutured by this method.

In some of the cuts, will be noticed a diagram of the stitch which has been passed through the pith of a gourd and in this way the pores have been partially closed along the line of pressure, which shows accurately the direction in which the pressure is made.

As far as I know this method of suturing is entirely new, and as has been previously stated is to a certain extent immature, except as far as the mechanical tests go. I am at the present conducting a series of experiments on living animals, for the purpose of obtaining information as to the amount of catgut which will be absorbed, whether the catgut or silk is better to suture the liver, and how much of the liver, and what portion, may be removed by this method without producing serious consequences in the animal. I simply mention the method now, in order that others who may be working along the same line may at least consider the subject and the method in their work. The points which are original, as far as I know, are the use of a catgut weave for a support and the indirect or angular pressure made by a counter-traction suture.

For the benefit of those who are working along this line, I will suggest that the needle should be round, full-curved and fully four inches long. The one with which the counter-stitch is made may be a simple darning-needle or any kind of a long straight needle.

PULMONARY SYPHILIS; REPORT OF A CASE.

BY JAMES M. WINFIELD, M.D.,
OF NEW YORK;
LECTURER IN DERMATOLOGY, LONG ISLAND COLLEGE HOSPITAL;
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Morton was, perhaps, the earliest writer to mention the possibility of syphilis affecting the lungs. In 1675 he described certain pulmonary diseases that were cured or ameliorated by antisyphilitic remedies.

During the eighteenth century many clinicians attempted to differentiate lung syphilis from true consumption; but it was not until about 1854 that any positive data were obtained, when Lancereaux, Ricord, Fournier and others, reasoning from certain postmortem evidences, were led to place this heretofore somewhat hypothetical conjecture upon a firmer basis; and the certainty that syphilis did produce sequelæ in the lung became a recognized fact.

It was not, however, until the *bacillus tuberculosis* was proven to be the specific etiological factor in pulmonary consumption, that a positive differential diagnosis was made in the living subject.

Formerly it was thought that syphilis did not attack the lungs as frequently as it did the other viscera. A Russian pathologist, quoted by Potain, states that out of 21,757 autopsies he found evidences of this disease of the lungs only 11 times. Virchow, in his earlier writings, expressed a doubt if it ever attacked the adult lung, although it was frequently found in children. On the other hand Porter of New York considers it to be common in adults. Satterthwaite is of the belief that lung syphilis is greatly underestimated by the general practitioner, and "almost unknown to many syphilographers." A Berlin physician recently (1900) made the extravagant statement that "syphilitic tuberculosis was so common that it decimated the flower of the land."

Reasoning from the conflicting opinions there seems but little doubt that syphilis does invade the lungs, almost as frequently as it does the other viscera.

The reasons why evidences of it are so seldom round are, perhaps, these: (1) The difficulty in differentiating it physically from tuberculous phthisis; (2) the possibility of syphilis and tuberculosis co-existing, and (3) the complete cure of the syphilitic lung lesion.

Pulmonary syphilis may be either congenital or acquired, and the lesions are of the tertiary stage. As examples of the inherited variety are quite frequently reported this paper will discuss only the acquired form.

Lung involvement has been observed as early as the second year after the primary infection; in fact Potain records an undoubted case occurring only two months after the chancre; but the majority have been seen after the specific disease had existed for a much longer period; some even as late as twenty years; one has been reported by Chowski at twenty-one years after the primary sore.

On postmortem one or two pathological conditions will be found. One, according to Lancereaux and others, consists of a gummatous and sclerotic infiltration; either of these conditions may advance to an ulcerative stage, as described by Orth.

According to Councilman and Julien the pathological changes are syphilitic degeneration of the arteries, thickening of the alveolar walls, and a filling up of the alveoli with epithelium cells; in short, an interstitial pneumonia is produced. The infiltration advances towards the periphery, and as it continues there may be considerable fibrous changes, especially about the bronchi and large blood vessels. This altered structure readily tends to necrosis and caseation, liquefaction and the formation of cavities.

Syphilitic interstitial pneumonia rarely occurs alone, but is generally associated with gummatous infiltration, but gummatous deposits may exist without any fibrous degeneration. Gummata may be either single or multiple, although the number seldom exceeds 10; in size they vary from a flaxseed to an egg, although the large single ones are rare.

The cavities are produced by the breaking down of one or more gummata, or the softening of bronchial glands, healing results in scarring and contraction. Gummata are generally located within the pulmonary substance and about the root of the lung, near the large bronchi and vessels. In a vast majority of cases the lower lobes are the ones affected.

These findings date back to the writings of the earliest observers; although cases have been seen in which the deposit was in the apex and near the surface, yet in 90 per cent. the trouble is found to be in the lower lobes and well in the substance of the lung.

The first noticeable symptom is a bronchial catarrh, which may or may not be accompanied by a cough; after the disease has progressed the cough may become a more or less prominent symptom. Dyspnea is constant and troublesome, and in some cases may simulate attacks of bronchial asthma. While hemoptysis is not common, fatal hemorrhages have occurred from softening of a gland that has ruptured into a large blood vessel.

Expectoration is scanty in the early part of the disease, consisting of glary and stringy particles of mucus with small clots of blood in the center. As the disease progresses the expectoration may become profuse, purulent and offensive. Repeated examinations of the sputum fail to reveal the presence of the tubercle bacillus.

One German observer claims to have seen the syphilitic bacillus of Lustgarten. The record of this finding must be taken with caution, for careful examination under most favorable circumstances often fails to find this elusive syphilitic germ even in the suspected tissues; and even if found it would take considerable bacteriological skill to differentiate it from the tubercle bacillus.

Pain situated in the scapular region, and which can be produced by pressure over the sternum, is sometimes present and is of a peculiar character; it usually begins before the expectoration and lasts long after all other symptoms have subsided.

The sufferer from this disease may emaciate, but often there is no appreciable loss of weight until the disease is far advanced. Night sweats are not common; pyrexia is seldom seen early in the disease; later, if there is absorption of pyogenic material, this symptom may become as marked as in true consumption. Examination of the bones of the thorax will reveal marked thickening of the clavicular periosteum.

Very little can be gained by physical examination. There may be complete absence of râle or bruit, and again all of the signs of consolidation and cavity. A correct diagnosis can only be made from the absence of the tubercle bacillus after repeated and careful examinations of the sputum; the evidences of tertiary syphilitic lesions; the eliciting of a syphilitic history; and last, but by no means unimportant, the relief obtained from anti-syphilitic remedies.

Recapitulation of Symptoms.—Disease more frequently observed in females; bronchial catarrh; dyspnea, often distressing; scanty and blood-stained expectoration becoming profuse and purulent as the disease progresses; sputum never contains the tubercle bacillus; pain referred to the scapular region and also can be aggravated by pressure over the sternum; night sweats uncommon; little, if any, elevation of temperature; emaciation not a prominent feature; the presence of periosteal thickening of the clavicle; signs of bronchial stenosis; consolidation and cavity formation.

The following history is interesting, because it shows how easily syphilis of the lungs can be mistaken for tuberculosis; even by the most competent observers.

Early in the fall of 1901 Mrs. S. consulted me for a chronic cutaneous ulceration, situated principally over the outer aspect of the forearms. Her previous history was as follows: Married; aged thirty-eight years; native of the United States; parents living; no history of consumption in the family. She was married at twenty-six; six months after her husband died of typhoid fever; four months later her child, a boy, was born; he was delicate from birth, but now appears healthy. After remaining a widow for five years, she remarried. She became pregnant two years later; aborted at the third month; has never been pregnant since; convalescence from the abortion was slow; in fact she has never been perfectly well since. About a year after the miscarriage she began to be troubled with bronchial catarrh, cough and dyspnea.

She consulted two very competent physicians of Brooklyn; both said she was suffering from tuberculosis and advised her to go to the mountains. Being unable to follow the doctors' advice, she received active treatment at home, but without any apparent benefit; her weight became reduced from 135 to 95 pounds. After continuing this way for two or three months she consulted a prominent pulmonary specialist of New York, who told her that she was far advanced in consumption, and her only salvation was to go immediately to the mountains. Thoroughly alarmed, she took up her abode in the mountainous region of southern New York.

The doctors there confirmed the diagnosis and prognosis of the specialist; but in spite of the gloomy outlook she began to feel better; her appetite improved, and her weight increased. The pulmonary condition remained about the same, except that the expectoration became more profuse and purulent.

After living in the mountains for two or more years, the doctor advised her to go back to Brooklyn; telling her that it was only a matter of time anyway, for there were evidences of a large cavity in the left lung. She came home and has continued to improve ever since. During her stay in the mountains she received all sorts of treatment for tuberculosis, even injections of anti-tuberculous serum.

On personal examination I found her to be a large fine-looking woman, apparently not over thirty years of age; her weight is now 180 pounds.

The skin disease for which she consulted me was a well-marked serpiginous tubercular syphilide, situated over the forearms, legs and back.

She denies all knowledge of any primary infection, but on close questioning she recalled that during the year following the miscarriage she had been troubled with sore throat and mouth and that her hair had fallen out in "spots."

Physical examination revealed the presence of a cavity in the lower lobe of the right lung, near the base; the left lung appeared normal. Each morning, or on arising from a recumbent position, she will have a violent fit of coughing, which empties the cavity of muco-purulent sputum.

The patient assured me that none of the lung specialists had ever examined her sputum, and that when she asked them to do so, they said the certainty of the physical signs made it unnecessary.

While she was in the mountains she consulted a New York dermatologist regarding the skin lesion, for which she afterward came to me; he examined her sputum, and, judging from the treatment instituted, recognized the true pulmonary disease as well as that of the skin.

I examined her sputum and failed to find any evidences of the pathognomonic germs of consumption. The same report was received from three expert bacteriologists, who had received specimens for examination.

When the diagnosis had been determined she was put on anti-syphilitic remedies, iodides, mercury, tonics, etc., and immediately improvement followed, and at the time of writing, except for a slight cough, some sub-scapular pain. and dulness over the site of the cavity she is practically well.

(In passing it is interesting to note that the skin lesion had been diagnosed as cutaneous tuberculosis.)

If we take into consideration the classical pulmonary symptoms, the unmistakable history of the early manifestations of syphilis, the presence of a late dermal tubercular syphilide, together with the absence of the tubercle bacillus, and the rapid and permanent improvement under anti-syphilitic remedies, we are safe in assuming that this patient had been, and was suffering from pulmonary syphilis.

47 Halsey Street, Brooklyn, New York.

ADDRESS.

MOSQUITO DESTRUCTION.[1]

BY GEORGE A. SOPER, PH.D.,

SANITARY ENGINEER, DEPARTMENT OF HEALTH, NEW YORK CITY.

Ladies and Gentlemen: In complying with the request of the President of the Department of Health of New York to address you on the subject of mosquito destruction, it is recognized that the town of Flushing has special claims for consideration. In Flushing we have a large population situated on upland, immediately adjoining extensive tracts of salt meadow, but a few feet above the level of Long Island Sound. The country to the east and west, and, in fact, all about Flushing, Whitestone and the adjoining villages, has long been recognized as a region whose natural advantages have been much interfered with during the summer months by mosquitoes. Malaria, a disease the importance of which occupies a front rank in the calculations of insurance companies, if not in the estimation of residents and old settlers, has been considered endemic in the Borough of Queens, as in the Bronx and Staten Island, for many years. Now that methods for the destruction of mosquitoes and the suppression of malarial fever are available, it is fitting that your town should be among the first to receive attention. Unfortunately the Department of Health cannot rid you of mosquitoes on the instant. In fact, the plans which are making for wholesale mosquito prevention, and which are intended to have a general application, are not yet complete and will not be available for some time to come. But I am instructed to say that meanwhile all the aid and encouragement which can be given for such work as your association may carry on will be most cheerfully supplied.

You have been quick to recognize that the duty of all good citizens is to assist in promoting this newest form of sanitation. By uniting the spirit and energy of those who have the interests of the community at heart the greatest progress can be accomplished.

Malarial fever and the mosquito nuisance have been mentioned together. They are closely related. The causes of neither can be seriously doubted by anyone whose mind is open to proof.

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[1] An address delivered before the Good Citizens' League of Flushing, New York, August 13, 1902.

For example, it lies within the power of any person to satisfy himself as to the essential facts connected with the breeding of mosquitoes. If there be anyone inclined to doubt the statements of scientists and others which have been made so current by the newspapers, particularly with regard to the prevalence of breeding-places and the rapidity with which mosquitoes multiply, let him go into the back yards and empty lots of Flushing and look for puddles or tubs which have been standing with water in them for some time. In all probability his search will be rewarded. In some of these collections of water small objects will appear which look like animated exclamation-points skating across the water or hanging in a pendent position from the surface. Let some of these wrigglers, as they are called, be captured and kept in water for a few days and they will become winged mosquitoes. It is believed that mosquitoes breed only in stagnant water. Long grass and vegetation afford shelter and harbor for the adults, but not conditions necessary for the hatching and development of the larvæ.

How Malaria is Transmitted.—The fact that mosquitoes are necessary and sufficient for the spread of malaria rests upon proof which is as indisputable as the fact that mosquitoes are hatched in water. The microbic parasite which is always present in the blood of persons ill of malarial fever is absorbed by the mosquito in the act of sucking blood. It has been found with the microscope in the stomach of the mosquito. From the stomach the parasite enters the salivary or poison glands, and from these it is injected when the mosquito again bites. A mosquito infected with the malarial microbe may live through a summer and bite frequently. As you well know, mosquitoes frequently hibernate through the winter in cellars.

Perhaps one of the most conclusive proofs that mosquitoes convey malaria from person to person has been afforded by English investigators who went to some swamp lands near Rome and lived in a mosquito-proof house in a district infested with malaria without contracting the disease. At the same time infected mosquitoes, which were carried from this place to London, and allowed to bite two gentlemen who had never had malaria, caused a prompt appearance of the disease.

It is an old and exploded theory, but one which has gained in its many years of acceptance a wide currency, that malaria is due to a subtle poison which rises as a mist or gaseous vapor from such matters as stagnant water, newly upturned earth and low-lying land. There is abundant evidence to show that these conditions are not directly the cause of malaria. To go no farther, we may consider the twenty-one miles of excavation for the rapid-transit subway on Manhattan Island. So far as can be learned, no more malaria has occurred among the people along the line of this work or among the laborers engaged upon it than is normally present. In the light of present knowledge, stagnant water, excavations in the earth and low-lying land are associated with malaria only because they often afford breeding-places in which malarial mosquitoes are developed.

To put one in peril of malaria it seems to be necessary and sufficient that the malarial mosquito shall be present and have access to some person suffering from the disease. In Greater New York these two conditions often occur. Malaria is very prevalent, but of an exceedingly mild type.

The Two Principal Kinds of Mosquitoes.—And here I should probably point out that considerable differences exist among mosquitoes, and that it is possible to divide those which occur hereabouts into two classes —mosquitoes which simply annoy by their bites and those which both annoy and carry malaria. The mosquitoes which make up these two classes are quite different in appearance and in their habits of breeding. In the neighborhood of Flushing the most prominent mosquito is the Culex solicitans, which breeds plentifully at the edges of salt marshes, has a habit of biting by day and night, and is dressed in a garb resembling the conventional uniform of gray and black stripes worn by convicts. This species of Culex is not known to be harmful to man in the sense of carrying malaria, although its power to cause discomfort, even to the point of affecting the value of real estate, is not to be denied. Another common species is Culex pungens, which often breeds in buckets and rain-barrels. The last mentioned are household mosquitoes and are most troublesome at night.

As compared to the Culex, the Anopheles, or malaria mosquito, is rare. It is seldom seen flying about in the daytime, and its presence might not be suspected except for the cases of malaria which occur. It is peculiarly the habit of the malaria mosquito to confine its depredations to the neighborhood of its breeding-places, many observers believing that it rarely travels over 250 yards from the water in which it is hatched.

There is no trouble in distinguishing between the malaria mosquito and others. In appearance it is a dark-colored, sleek, gamey-looking insect with spotted wings. In contrast with the common hunchbacked Culex, the stinging instrument of the Anopheles mosquito lies on a straight line with its whole body. The malaria mosquito breeds in small fresh-water pools and in cow-tracks and post-holes, for example, which are above the reach of the tide. The line where the fresh water of the upland oozes out into the region of tidal influences marks a favorable locality. The wrigglers and winged insects are most often found in glens, cloves or hollows occupied by swamps or quiet brooks. When very plentiful, the Anopheles mosquito breeds in pools, puddles, pits, wells, cisterns, catch-basins, and similar places in which it would not ordinarily be sought. In fact, it is not possible to announce positively that Anopheles will not breed in any small accumulations of stagnant water which are not salt and which are free from fish.

It is important to keep in mind these facts which are generally agreed to as the most essential concerning the breeding of mosquitoes, if intelligent methods are to be followed in avoiding the pests.

Methods of Destroying Mosquitoes.—There are various ways of reducing the number of mosquitoes in a neighborhood besides the usual retail method of waiting until the insects bite before destroying them. Adult mosquitoes may be killed in a house by the burning of pyrethrum powder or by the use of formaldehyd or sulphur. Any druggist will supply these materials and explain how they are to be used.

The most effective methods of avoiding a prevalence of mosquitoes depend upon the fact that the insects lay their eggs on or near still water which hatches them into air-breathing wrigglers and finally winged mosquitoes. Often 200 eggs are laid at a time, and the average period required for these to produce adults is usually a little more than ten days.

The simplest way, therefore, to prevent a mosquito nuisance is to avoid allowing small accumulations of stagnant water to occur. It is astonishing to note how extensive and prolific are the breeding-places of mosquitoes even in thickly settled places like Flushing. Without systematic search for them, I have found here pools and buckets of water each of which probably gave off 100 mosquitoes per day. It is easy to conceive that such a space could give off 5,000 mosquitoes in a summer. If there are 200 such breeding-places, which is not a large estimate, we have 1,000,000 mosquitoes accounted for at once. It was estimated last year that a gentleman living in a town near Flushing contributed over 10,000,000 mosquitoes during the season through the rain-barrels and tubs which were kept upon his premises.

It is a very simple matter to destroy the breeding-places of mosquitoes which occur in your town among the residences. Here is work at your very door-step, and I would advise that the campaign begin here. I would suggest that you employ a corps of inspectors to go from yard to yard every month or so to look for accumulations of standing water, and that they be instructed to call the attention of householders, caretakers and others to the objects, methods and advantages of their visit. A brief word of instruction will usually be sufficient to induce the tenants to destroy or remove the objectionable conditions found, but in the event of resistance or wilful interference with your work the Department of Health can be appealed to. The Department of Health has power to order the abatement of nuisances, and can require that the breeding-places of mosquitoes which occur on private property be destroyed by filling, draining or other means.

Your inspectors will find that bottles, tin cans, buckets, pails, rain-barrels, tubs and other such receptacles are common causes of offense. These should be destroyed or removed beyond the possibility of further trouble.

Cisterns and cesspools are frequent causes of difficulty. It is not impracticable to keep a few fish in cisterns and rain-barrels. Goldfish and silverfish are recommended for this purpose. For the correction of cesspool breeding-places a few ounces of oil should be passed into the drains once a week.

When the breeding-places of mosquitoes in the thickly settled parts of the town are attended to, or when this work is well under way the campaign should be extended. Puddles and low places in vacant lots which hold permanent accumulations of water should be treated; where practicable they should be filled with earth, sand or other sanitary material. Occasionally it may be feasible to drain away water without causing further offense, and when this can be done it is a proper remedy.

Pools of water formed by road or railway embankments are a common cause of difficulty in this neighborhood. Often they can be filled or drained at trifling expense. In some cases, however (and it is unfortunate that these instances are very numerous in Greater New York), the draining of ponds and pools made by the construction of streets and roads can be accomplished only by following an extensive plan of drainage. Under such circumstances property owners may combine to construct drains, but you will find it difficult to obtain their consent to the assessment necessary for the work. It is hoped that the Board of Health will find a way to procure proper drainage for such places, either through the construction of drains which will form a part of the sewerage system of the city, by filling, or by the construction of channels which will be useful until the growth of population warrants the completion of the general sewerage plan.

Oftentimes there will be need of an immediate remedy, even though this be but temporary. Here oil is indicated, as a physician would say. Oil is an excellent temporary remedy; it costs little and its effects are immediate. For oiling pools of water, what is known as Light Fuel Oil, supplied by the Standard Oil Company at $2.75 per barrel is recommended, although many other oils are good. When the oil is applied it forms a film over the surface of the water, and the wrigglers or mosquito larvæ, which come to the surface in order to get air to breathe, are suffocated. The oil should be applied as often as necessary to keep a thin film on the water. In some cases it will be necessary to apply it every two weeks or oftener. Oil can be easily sprinkled upon the water by means of a watering-can, or a cup or bottle may be used to scatter it in the case of small pools. The Department of Health is now distributing free of charge oil and a knapsack apparatus for the application of oil to small water surfaces. The allowance of oil generally required is about one gallon per 2,000 square feet of water surface, or a little more than half a barrel to the acre.

The Culex or common ring-legged mosquito breeds chiefly in brackish pools on the meadows just above the influence of ordinary tides. These pools can generally be drained at very trifling expense. In order to do this work an inspection should first be made to determine the location of the breeding-places. A lath or other handy stick should be thrust into the ground to mark a pool which is to be drained; a white cloth tied to the upper extremity of the stick will make its location more conspicuous. A small gang of laborers, say half a dozen, may then go upon the meadow, and after marking the course of the proposed ditch with a cord stretched between stakes, they may proceed to dig.

In most cases the channels may well be of uniform width, say 18 inches across, with vertical sides and dug down to tide-water. The ditches may be joined like crow's-feet or branched or anastomosed. If dug down to mid-tide level, the tide will rise and fall, through most of the system of drains, causing currents of water to flow in them which will effectually prevent the larvæ from propagating. Fish, mostly top-minnows, will make their appearance in the drains. The pools, which are generally shallow, dishlike receptacles, will dry up and give growth to pickle and other vegetation. In this way meadow land lying within two feet of tide-water may be completely rid of mosquito-breeding places at trifling expense. The cost of ditching in this way is about a cent and a half per running foot, reckoning that a laborer working for $1.50 per day digs ten feet of ditch per hour. No elaborate map or plan or calculation is necessary preparatory to ditching of the sort described.

The foregoing method of draining the meadows has no reference to what is properly known as reclamation. It is not intended that the land shall be made suitable for growing crops. The object is simply to give vent to pools of water in which mosquitoes breed. The reclamation of the many square miles of meadows or salt marshes in Greater New York, so as to make them suitable for agricultural and building purposes, is a very large problem. The digging of simple little ditches or drains provides, like the use of oil, a temporary relief from mosquitoes, and for the meadows this is the best and most economical remedy that can be made effective until more permanent relief measures can be carried out.

It is my opinion that if you arrange to prevent the breeding of mosquitoes in your back yards, streets and vacant lots, and can put a temporary stop to the multiplication of mosquitoes in your fresh-water pools, swamps, salt meadows and semistagnant brooks in the neighborhood, you will have rendered the Department of Health and yourselves the greatest service which is now within reach. Whatever is done should be undertaken in as systematic and regular a way as possible, in order that the accusation most often and justly made against the work of mosquito brigades—that their methods are haphazard—may be avoided. It will be well worth while to lay out a definite plan of action and to record the methods used and the results accomplished even though such clerical work should taken some time from your active operations.

MEDICAL PROGRESS.

SURGERY.

Prosthetic Use of Paraffine.—The use of subcutaneous injections must be pronounced as a great advance in surgery, as many disfiguring deformities now easily permit of correction. Yet there are certain risks connected with the injection of large amounts, the chief ones of which are pulmonary embolism and the development of toxic symptoms. By removing the syringe from the needle to see if this has struck a vein the danger of the former cannot be entirely obviated. F. NEUMANN (Prog. med. woch., June 26, 1902) points out another fatality which may occur, namely infection in cavities which are not entirely clean. These will be especially encountered in dental surgery and whenever he has occasion to fill a cavity or dental cyst, he always takes the precaution to add a disinfectant to the paraffin.

Tuberculous Exostoses.—What may be called rare manifestations of the tuberculous process are the bony outgrowths occasionally seen during the course of a tuberculosis. Upon this subject, M. MAILLAND (Rev. de Chir., 1902, No. 6) offers the following facts: In certain patients one meets with exostoses upon the tuberculous bones which are small, vermiculated, dentilated and of other various forms, but have a normal regular structure and cannot therefore be regarded as tuberculous in origin. The osteophytes are produced under very different circumstances. One series which is much the more common appears upon bones which were previously the seats of a tuberculous condition, but at so great a distance from the principal focus to make it unlikely that they become confused with the periosteal outgrowths which sometimes heap up about the true focus of disease, especially as a means of cure in the filling up of destroyed bone areas. The other series, much the more rare of the two, appears upon bones in medical subjects of tuberculosis whose bones were previously entirely healthy. In both of these cases the histological structure is the same. The first variety may be explained by the theory of protection to the organism, representing the reaction of the periosteum as a whole to the tuberculous osteitis which is well known as spreading by continuity. The second variety is also produced by a reaction of the periosteum, but remote, not local. It may be explained by assuming a low grade of osteomyelitis produced by the bacteria and their poisons. The periosteum takes on a similar reaction. The parallel of this is seen in the periostitis and osteomyelitis of typhoid fever. The reason why this reaction is more evident on the part of the periosteum than of the bone-marrow, is probably due to its loss of function consequent the fatty degeneration which it is known to undergo in tuberculous patients. Another evidence to this fact is the absence of sequestra.

Surgery of the Spinal Canal.—The spinal canal and its contents are among the more recent fields of surgical work. E. HAHN (Deutsche Zeitschr. f. Chir., 1902, May) gives the following observations in summing up the clinical aspects of the matter: According to his experience it is very much less difficult in the vast majority of cases to make a diagnosis of the segment in which the disease is located than of the nature of the pathological process *per se*. By reference to the tables of Thorburn describing the zones of sensibility referable to each segment of the cord, to the schematic representation of Gowers of the relations between the spinous processes and the bodies of the vertebræ, to the segments of the cord, and further by consultation of the tables of Edinger and Starr and the law of Scherrington, the matter of determining just where the lesion is becomes rather easy; but no aid is given by such data as to the nature of the lesion. This matter is one of far greater difficulty as a diagnosis, actually an impossibility sometimes, but always a vastly important factor in the indications for and against operation, in the outlook for its success and in the ultimate cure of the patient. All intramedullary tumors and diseases must be essentially precluded from any operative interference, a fact which relegates to the surgeon only the extradural and the intradural cases. The latter of these are in danger, immediately and remotely, from the loss of cerebrospinal fluid when the dural sac is opened. Sik has devised the simple scheme of gently ligating the cord at the time of the operation, to shut off the rest of the subdural cavity and thus prevent any loss of the fluid. This plan of procedure works very well indeed. Proof of its efficacy as an operative aid and of its safety and harmlessness upon the cord-tissue and its functions is indicated by the extraordinarily satisfactory results of Schede in this field after using the suggestion of Sik. In tumor-cases, after removal of the growth, suture of the dura is advisable. Statistics of these operations are the following: Up to 1900 Krause found thirty-two records, fourteen deaths and eighteen recoveries; since then Hahn has found (including Krause's series) forty-three records, eighteen deaths, twenty-four recoveries, and one failure. The length of time since these operations were done is not long enough to permit of any discussion of permanent results. The fact that benign tumors of the cord predominate will indicate that the end results will be permanent in most cases. As to the kinds of tumor occurring in this region Hahn gives this list: Fibroma, lipoma, sarcoma, myxoma, both intra- and extradural. Caries of the bones remains in its essence necessarily almost always extradural, likewise echinococcus cysts, but syphilitic deposits of all types are almost always intradural and intramedullary. The prognosis is of course best when purely extradural tumors are encountered and reserved when they are intradural, but if no evident permanent drainage has occurred to the nerve-tissue it is, even in these, good. Compared with the prognosis of fractures, dislocations and other lesions with wounds of the nerve-substance, which are always followed by degenerations, both ascending and descending, that of all classes of tumor is better, because these degenerations are not marked in them. The technic of the operation for tumor is easy because it is usually located behind or beside the nerve tissue.

Impressions of the Foot and Hand for History Records.—Up to the present time the usual manner of making impressions of the soles and the palms for the purposes of history records has been by the technic of Volkmann, so well known and consisting of glazed paper covered with soot. This is a very acceptable makeshift but has various well known disadvantages. First of all is the dirtiness of the whole process, because not only are the skin of the patient and physician smeared at the time of the original record, but also those of the latter whenever the same is consulted at subsequent dates. The record itself can not be fixed and made permanent. Such carbon pictures give the gross outlines of the foot and hand rather successfully, but they miss the refinements of the skin very often.

A paper which must be fully adapted to this purpose must not only possess none of these faults, but also present at least these three characteristics: Readiness for instant use without any special preparation; freedom from material which comes off upon the hands and its covering must be in a fine film; ability to receive and record all the fine points of the skin. Bettmann (C'blatt f. Chir., 1902, No. 27), in searching for such a paper found the ordinary photographic celluloidin-copying paper to fulfil all these data. The skin of the sole is rendered just a little and uniformly damp with soda solution such as is used in the fixing bath, or with the ordinary tone-fixing bath solution and then the patient stands upon the paper for a couple of seconds. The paper is then exposed at once for a few seconds to bright sunlight which rapidly develops a picture which is not only clean-cut in its outline but in its delicate and ultimate refinements like skin-furrows, pores and the like. The picture is then put into the tone-fixing bath and treated exactly as any ordinary copy would be finished. It may then be dried and added to the history. Such an impression excels the carbon-record very far in cleanliness, definition and simplicity of production. A large variety of easily obtainable chemicals may be substituted for the soda solution with entire success. If the foot is sweaty, that alone will change the bromosilver film of the celluloidin paper. Instead of this kind of paper ordinary Prussian blue paper may be used as a cheaper substitute. With this dilute vinegar is used to dampen the foot and then after the impression is made the paper is put into water at once, instead of the light, then dried and put into the history. Some of the details are lost in this simple procedure but for most orthopedic work will be found quite sufficient. What has been said about impressions of the sole applies also to those of the hand.

A Rational Incision for Whitlow.—Neatness and rapidity are aims sought during an operation, if they can be realized together with the minimum of scar afterward, three all important desiderata will have been reached. Operations about the fingers usually permit of rapidity of execution; but, unfortunately, the other two requirements are too little heeded. A. Reverdin of Geneva recommends the following rational incision for whitlow. Ordinarily the focus of disease is approached by the middle line. The result is either a tender scar upon the palmar surface interfering with the grasp, or a contracture which also results in loss of function. In order to avoid these complications of the cure Reverdin enters a long, straight, slender bistoury transversely at the base of the phalanx, transfixes and cuts outward close to the palmar surface of the bone, so that the ball of the finger makes an anterior flap, which when retracted exposes the diseased bone *in toto* for removal. This is easily accomplished. The wound passes through relatively healthy tissue, heals therefore more quickly and more firmly, with less scar and no possibility of contracture. Drainage is easy through it near the base on one side or the other, and a couple of sutures secure good approximation.

Amputation Stump Covered with the Tendon of Achilles.—Aseptic and antiseptic methods have aided surgeons in undertaking plastic methods which would otherwise fail. Dr. Wilms of Leipsic (C'blatt f. Chir., 1902, No. 27) describes an amputation stump capable of bearing pressure and covered with the tendon of Achilles. Bier has recently opened the discussion of this entire question by his recent admirable paper on the subject of making osteoplastic flaps with which to cover the ends of the bones. Wilms differs in some particulars from Bier, notably wherein the latter teaches that it is not possible to cover the bones successfully in amputations in the leg by soft-tissue flaps which lie betweeen the skin and the bones and protect the skin from attrition. Bier moreover claims that the usual case will permit one to produce hypertrophy of the skin by massage and use. Wilms' observation is that where there is only skin over the bone atrophy is far more apt to occur through mere pressure. In a sixteen-year-old boy Wilms recently amputated the leg about a hand's breadth above the malleoli and by saving the tendon of Achilles was able to bring it forward over the ends of the bones and stitch it to the anterior surface of the tibia, where it stayed in place very well. The patient was discharged at the end of four weeks with a very excellent stump, capable of bearing pressure and entirely without tenderness. Wilms suggests that a similar use of this tendon and its muscle may prove to be the means of very greatly increasing the general function of all amputation stumps in the leg.

Diagnosis of Carcinoma of Large Intestine.—Since a surgical intervention alone offers hope for cure the early diagnosis of cancers of the colon is especially desired. If a middle-aged individual who has formerly always shown well-regulated intestinal function, gives evidence of an increasing irregularity of stool, interrupted by periodical attacks of colic with or without obstruction, he should be looked at with suspicion even if there is no cachexia or change in the general health. Another symptom upon which F. Cramer (Münch. med. Woch., June 17, 1902) lays much stress, is the appearance of frequent, small hemorrhages, especially if complicated with increasing tenesmus. Care must, however, be taken to rule out lesions of a benign character in the rectum, such as hemorrhoids by a careful proctoscopy. Abundant hemorrhages with irregular intestinal peristalsis are also alarming, but, in order to place the lesion in the colon, the blood must appear fresh or clotted. The attacks of colic may be absent; when present they may appear as from a clear sky or may be preceded by prodromata such as constipation, anorexia, tympanites with eructations, vomiting and general malaise and sometimes fever. Frequently, high enemata remove the obstruction and with it the symptoms, but the free intervals become shorter and soon the general system will suffer and with it a tumor will be felt. When no colics are present, the growth does not encircle the gut but involves it in a more superficial manner. It is important to remember that certain toxins, as nicotine, may cause similar attacks of colic without any lesions in the intestinal wall. Another very important sign of tumor is intestinal erection which enables one to see and even to palpate the contracted gut and often to differentiate whether the large or small intestine is involved, though it is generally impossible to say from it in which part of the colon the trouble lies. Auscultation should not be neglected; on carefully listening to the abdomen a sound as if water were poured on the floor is often heard and of great value in that it is pathognomonic for stenosis, though not necessarily for carcinoma. Subjectively the most distressing sign is the tenesmus, provided the growth is sufficiently near the anus. A rectal examination is generally of more value than a palpation in narcosis, since here deep respirations are impossible and the tenderness of any locality cannot be ascertained. Great attention should be paid to the bloody excretions from the rectum as particles of the tumor may sometimes be voided; at all events one should always try to find the origin of the hemorrhage by means of Kelly's speculum, the patient being placed in the gynecological position after a rectal irrigation. On the whole, the type of hemorrhage is that of a slight oozing, repeating itself daily, but exceptionally, enormous amounts of blood may be voided. Ofttimes the blood is intermingled with purulent matter. The ribbon or ball-shaped feces that most writers lay so much stress upon is not of so much importance as the other symptoms and is not caused by the stenosis but by the contraction of the lower rectum and the sphincter ani. Lastly, it is in place to mention two more signs: the cachexia, which may be absent even in advanced cases, and the tumor, which may disappear, if caused by stagnant feces and not by new growth.

Morphine Scopolamine Narcosis.—A series of 130 cases in which the anesthesia necessary to perform large operations was produced by injections of morphine and scopolamine are reported on by B. KORFF (Münch. med. Woch., July 8, 1902), and on the whole his impressions are very favorable. The most agreeable part of the narcosis is that instead of the malaise, vomiting and pain in the wound seen after ether or chloroform, a long, refreshing sleep generally sets in which considerably favors primary union. The ether spray may be resorted to for the skin. The best way to administer the two alkaloids is as follows: Four hours before the operation 0.01 morphine and 0.0012 scopolamine are injected. Half an hour prior to this a fluid breakfast may be given. Two hours later a second injection of the same strength is made, and a third half an hour before the operation. Especial care must be exercised that the tongue does not fall back and only in one instance were there untoward symptoms in the form of a mild heart-collapse which rapidly vanished after two hypodermics of camphor ether.

Treatment of Tetanus.—The results from the use of the tetanic antitoxine have been rather disappointing, for the percentage of cures has been very small and there seems to be much uncertainty in regard to the amount of serum which is necessary in any particular instance. K. E. KELLOGG (N. Y. Med. Jour., July 12, 1902) shows that the two indications in the treatment of tetanus are: (1) The destruction of the toxine-producing germ, and (2) the neutralization of this toxine after it has once entered the system. He believes that carbolic acid is the drug par excellence in accomplishing these objects. The amounts injected and its effects can be controlled by noting its physiological action. After the parts have been thoroughly incised and, in case of sloughing, the edges excised and all pockets opened and thoroughly irrigated, a 0.5 per cent. watery solution of carbolic acid should be injected in a circle around the wound. If general absorption has already occurred it is better to make these injections along either side of the spinal column, and during the first few days from two to four grams may be injected every three or four hours. If any symptoms of poisoning are observed the carbolic must be cut down. Furthermore, this method of treatment has the advantage of not neutralizing any possible benefit that may be derived from the antitoxine treatment.

NEUROLOGY AND PSYCHIATRY.

Treatment of Early Mental Cases.—Many of the forms of mental disease are aggravated, especially if of functional type, by improper treatment in their early stage, when carefully adapted management should be applied to each case. F. S. FOOGOOD (Lancet, July 12, 1902) discusses this subject and reaches the following conclusions: Like the experience of Raw and Springthorpe who recently published a classic paper on this paper in the Lancet, this author's observation has recognized many individuals whose temporary insanity disappeared after a few days of well-chosen treatment. Some patients recovered their mental poise with the removal of abdominal tumors, others with the cure of various bodily affections, and the vast majority of these temporary cases, after the alleviation of alcoholism. This he concludes is the most prolific single cause in this class of mental disease. Delirium tremens is the most familiar form, and is usually accompanied by signs of alcoholism at the time of the onset. There are also patients who without showing any symptoms of actual alcoholism do suffer from its ravages in the nervous system. Dementia is the next most frequent form with its well-known symptoms. Cure usually is complete in from one month to six months. Mania may have its origin directly in alcoholism or may follow delirium tremens and dementia. Sensory disturbances are also very common, especially of hearing, smell and taste, less frequently of sight. His confidence in the curability of most of all these cases led him to request the authorities to permit hospital-ward rather than asylum treatment. There is a provision of the British Poor Law permitting a two weeks' observation of any case of supposed insanity, if desired, prior to committing it to an insane asylum. The doctor has availed himself fully and systematically of its terms during the past three years and has found that fully two-thirds of the patients do not require commitment, but are cured by ordinary hospital care. The stigma of having been to an insane asylum is very real, reacting upon all by preventing permanent and lucrative employment wherever the patient is known and upon the women by rendering them ineligible to marriage in the popular view. He has therefore induced the authorities to permit hospital observation of these unfortunates before pronouncing upon their hopeless insanity. Padded cells and mechanical restraint he has found to be rarely necessary. The presence of these temporarily insane patients in the hospital general or special wards affords an opportunity for their observation which the medical student would otherwise not have.

Santonine for Tabetic Crisis.—The obstinate and fulminating character of many of the crises of tabes dorsalis has made the prevention and the control of their pain matters of extreme importance to the patient and his physician. About a year ago G. Negro of Turin described his rather satisfactory results after the administration of santonine in a total daily dose of 0.15 grams, usually divided into three exhibitions. COMBEMALE and CHABERT of Lille have carried these observations forward and have administered this drug as a curative agent to nine tabetics of whom five showed marked improvement in the intensity of the pain. They have asked themselves the question whether it would not serve as a preventive measure given in the total daily dose of 0.15 gram at intervals of, say, ten days. They differ from the original reporter, Negro, in that they do not limit the administration of the drug solely to the time of the crisis but have continued its course for even twenty days consecutively. It is true that like Negro they have feared toxic and accumulative effects and therefore slowly decreased the daily dose to 0.05 gram during such courses. Yellow vision, however, has never failed in their observation to occur just prior to poisoning and to be a reliable signal for stopping the drug. Both of these observers conclude, however, that the best method of administration is the full daily dose of 0.15 gram at the earliest possible moment of the crisis, so as to secure prompt sedation. They have also given this drug in seven cases of ordinary neuralgia without any amelioration whatever.

The Topography of the Internal Capsule.—The intimate anatomical relations of this part of the brain to other important tracts and centers at or near the base render it a field for constant researches whose final outcome will be of course material additions to our present anatomical and physiological knowledge. P. Marie and G. Guillain (La Sem. Méd., 1902, No. 26) have been investigating this matter recently and embody their observations in the following brief terms: The internal capsule in man can not be described as an exclusively sensory territory and just as in the case of intense cortical and capsular lesions hemianesthesia may be entirely or partially absent. The motor path in the internal capsule occupies the posterior portion just to the level of the posterior angle of the lenticular nucleus. In this so-called lenticulo-optic tract, in which descend all the motor fibers, it is impossible to distinguish clinically the paths of the nerve-bundles to upper extremity, arm, leg, foot, etc., in man, although Beevor and Horsley and various pure anatomists teach otherwise. All of the motor fibers which descend at this point, are dependent the one upon the other by their numerous collaterals. Basing their opinions upon cases seen Marie and Guillain think that no lesion, however small it may be, can possibly break up this association of these fibers. Any miliary deposit, small hemorrhage, limited softening, or the like located at this point of the lenticulo-optic territory must necessarily involve a hemiplegic syndrome. This clinical fact is a corollary of the anatomical arrangement of the parts. A lesion limited to the internal capsule is followed by a descending degeneration of the entire area of the pyramidal tract in the bulb and the cord. They insist upon the application of these principles solely to man and emphasize the fact that they have been deduced by the anatomo-clinical method. If no regard is paid to the results of laboratory study of this region of the brain in animals and only the anatomo-clinical method (applied to man alone) be used, wide differences will be found between the conclusions of these two methods. Upon the latter basis alone it is possible to state that no constant segmentary arrangement of the internal capsule can be outlined.

Hebephrenia.—A case of this rather rare form of neuropathic insanity is described by W. R. Dawson (Dublin Journal of Medical Science, July, 1902). The patient, a lad of nineteen years, had always been solitary, had lived alone in lodgings, and had practised self-abuse for about two years, though not to excess. For some months he had been depressed and felt that his appearance was changing for the worse. One day he threw himself into the sea with suicidal intent but changed his mind and swam out again. He showed little reticence in speaking of the matter or of his self-abuse, but was very miserable and suspicious, thinking that everything was being done to annoy and torture him, and that his sisters were not really related to him, etc. About ten days after admission to Farnham House, with tonics, cold baths and attention to the bowels he began to cheer up, but developed a neurotic tendency to bursts of causeless laughter. In about six weeks his delusions had practically disappeared.

One's general impression was that the mental symptoms were in many respects like an exaggeration of the frothy emotionalism, introspection and self-centredness of puberty, which had been thrown late in his case. The relation of hebephrenia to paranoid is interesting. The resemblance is considerable, but it would rather appear that whereas paranoia consists in a sort of gradual and progressive hypertrophy of certain peculiarities of the individual, hebephrenia is essentially a hypertrophy of the peculiarities found at a particular period of life in almost all individuals, and is, therefore, related to imbecility.

Multiple Neuritis.—In typical cases of neuritis we have a symmetrical localization of motor, sensory and vaso-motor symptoms. In the earlier stages the symptoms are those of irritation, while later they are those of destruction. Very few cases are at all typical in their symptomatology, however, and hence the various mistakes in diagnosis. D. R. Brower (Med. Rec., June 21, 1902) points out that either the motor, sensory or vaso-motor symptoms may predominate. As an example of the distinctly motor type he mentions lead paralysis and tetany; of the sensory type, pseudo-tabes and leprosy; of the vaso-motor type, erythromelalgia and Raynaud's disease. The usual form of multiple neuritis is due to alcohol and is, ordinarily, of the mixed type. The onset is commonly insidious, the earlier symptoms being numbness, tingling, cold and clammy hands and feet. Pain and tenderness soon follow, and the early appearance of the reaction of degeneration is a valuable aid in diagnosis. The escape of the muscles of the trunk and the control which the patient has over the sphincters are points of assistance in excluding myelitis. Psychic symptoms are parts of the general alcoholism. Arsenical neuritis may usually be diagnosed by the absence of alcoholic symptoms, by the edema of the eyelids, epigastric distress and nausea. The knee-jerks and superficial reflexes may be present in arsenical neuritis of moderate grade. In lead neuritis there are two common types, the lower arm (wrist-drop) and the upper arm types. Landry's paralysis in its typical form has sensation intact and sphincters uninvolved. It is characterized by a rapidly advancing paralysis beginning in the legs and extending upward. In the acute stage the treatment consists of rest and a rational elimination of the toxic substance which has acted as a cause. The micro-organisms which are most apt to cause a neuritis are those which induce diphtheria, typhoid fever, influenza, leprosy and beriberi. In the chronic form one should not get discouraged even if results are not gratifying, for persistance with electricity and massage with attention toward the general improvement of the physical condition will usually be rewarded by satisfactory results in the end.

Spastic Spinal Paralysis.—The existence of a spinal form of family spastic paralysis, as distinguished from the cerebral form, has been much disputed. An interesting series of cases is reported by W. G. Spiller (Phil. Med. Journ., June 21, 1902) in which the disease occurred in fourteen members of a family extending over four generations. The onset was usually early, about the fifth year, though one became affected at 18 months. Females and males were about equally affected and the same symptoms presented: spastic paresis of the lower limbs, with contractures and exaggerated reflexes of these limbs.

Conjugal General Paralysis.—Five cases of general paralysis occurring in both husband and wife are reported by P. Kereval and G. Raviart (Arch. de Neurol., June, 1902). The principal etiological factor found in these cases was syphilis, but it was not present in all the cases, some of these being attributed to alcoholism, cranial traumatism, heredity and certain moral factors that puzzle the clinician. In the first case there was a history of syphilis in both husband and wife; in the third case, of alcoholism. In the fourth case neither syphilis, alcoholism nor trauma was found in the husband's history, while the wife attributed her disease to worry and misery. In the fifth case heredity was the etiological factor in the husband, while in the wife the disease seemed to be due to grief over the condition of the husband. Apart from these factors that lie at the basis of the appearance of general paralysis in husband and wife, the authors believe that the appearance of the disease in both members is not to be considered a simple coincidence.

Innervation of Lachrimal Gland.—Owing to the great difficulty of experimentation some doubt has always existed as to the innervation of the lacrimal gland. The painstaking work of G. KOSTER (Arch f. klin. Med., vol. 72, Nos. 3-6) makes it probable that besides the facial, the sympathetic sends fibers to the gland, and that there exists a condition analogous to that of the salivary glands which are supplied by both a medullated and a non-medullated nerve. Further work, however, is strongly indicated to determine if both nerves act upon the secretion of tears or if they antagonize each other in action.

Pathology of Chorea Minor.—Autopsy on cases suffering from chorea are rare, and occasions to examine the condition of the nervous system for lesions but seldom present themselves so that the disease is generally looked upon as a neurosis. The more interest must attach itself to the article of M. REICHARDT (Deutsch. Arch. f. klin. Med., vol. 72, Nos. 5 and 6) who records distinct change in the line of inflammation, hemorrhage and degeneration of nerve-fiber. The inflammation was characterized by perivenous, round-cell infiltration involving almost the entire brain and only in one place assuming macroscopic proportions. The seat of the most marked change was the Sylvian aqueduct and the visual ganglia in one case and in another the subcortical layers. The hemorrhages were better visible to the naked eye and corresponded in position with the inflammation, but the fatty degeneration of the nerve-fiber had an independent seat in the posterior parts of the internal capsule and in the lateral region of the pulvinar, while in the spinal cord the nerve-roots and the fibers in the anterior and lateral horns were affected. The bacteriological examination was negative in one case, and doubtful in another where staphylococcus aureus was found in the blood, but an endocarditis also existed. The chorea-bodies and multiple emboli which have been described as characteristic for chorea were not found in the observed cases, which seems to strengthen the view that chorea is due to the toxins of bacteria.

Narcolepsy.—A case of the interesting condition known as narcolepsy is described by L. LOWENFELD (Münch. med. Woch., June 24, 1902). Since first discussed by Gelineau some twelve years ago, little attention has been directed to this peculiar pathalogical state which is characterized by frequent and short periods of sleep, generally induced by some emotional strain. There also is present considerable restriction of the locomotor functions. There most likely exists some change in the nervous system in the nature of a neurosis since structural changes are improbable. The patient was considerably improved under hypnotic suggestion.

THERAPEUTIC HINTS.

Acute Exudative Nephritis.—Delafield says: The way we manage these patients is to put them to bed or keep them in the house till the nephritis has run its course. They are kept on fluid diet, preferably milk, and the skin of the entire body is cleaned once a day. For many cases no other treatment is necessary. If vomiting is troublesome it can usually be controlled by adding cerium oxalate and sodium bicarbonate to the milk. For the restlessness and sleeplessness chloral hydrate, the bromides, or opium may be employed. If the nephritis is of severe type, the patient is wrapped in a blanket wrung out of hot water and kept in it for one hour once or twice a day. In addition we give one drachm (gm. 4.0) of sulphate of magnesium every hour until the patient has taken eight doses or the bowels move, or calomel gr. ¼ (gm. 0.015) every hour for six doses, or till the bowels move. This is followed by one or two minims of tincture of aconite every hour. Throughout the disease we watch the pulse, and, as soon as it shows any increased tension, give chloral hydrate in doses of from two to five grains every three hours. If severe headache, muscular twitchings, or general convulsions occur, to most of the patients we give chloral hydrate, gr. v-xx (gm. 0.3-1.3) by rectum, or nitroglycerin gr. $^{1}/_{200}$-$^{1}/_{50}$ (gm. 0.003-0.0012) hypodermically, or morphine gr. $^{1}/_{10}$-$^{1}/_{6}$ (gm. 0.006-0.01) hypodermically. In strong and robust adults with a good deal of venous congestion, general blood-letting may be advisable. For the relief of the convulsions urethane in solution, in repeated doses up to 100 grains (gm. 6.6) in twenty-four hours, is said to be of service. As the nephritis subsides the milk is gradually replaced by solid food, and iron and oxygen are given.

For Tape-worm in Infants.—

℞	Cupr. oxid. negr.	gram.	3.0	(gr. xlv)
	Cretae prep.		1.0	(gr. xv)
	Pulv. agarici		6.0	(ʒiss)
	Glycerin		5.0	(gr. lxxv)

M. et ft. 50 pil. Give two twice a day for fifteen days, then gram 10-15 (ʒijss-℥ss) of castor oil.—FILATOFF in Progrès Médical, June 28, 1902.

Food of the First Infancy.—Although in almost all cases, writes P. BUDIN (Le Progrès Médical, July 5, 1902), mother's milk is the desirable food, yet it does not guarantee perfect safety for the child, and the nursing must be supervised. Some women have too much milk and it flows very freely, hence too abundant and too rapid feeding by the child. Others in their desire to satisfy the child, give the breast every time the infant cries and thus overfeed. Others again have milk that is too rich, resulting in diarrhea, eczema, etc. If one has a weakly infant too free feeding brings on vomiting or diarrhea, and too little feeding induces attacks of cyanosis; so the author reports below the amount of woman's milk found just suited to the development of infants according to weight, without producing any untoward symptoms. Of infants during the first ten days, those weighing 1800 grams (60 oz.) or less, require, on the second day, 115 grams, on the third 160, and through the succeeeding days to the tenth, 210, 225, 250, 280, 285, 310, 320 grams of mother's milk. Infants weighing 2200-2500 grams (72 to 84 oz.) require on the second day 180 grams, and 236, 295, 335, 370, 375, 385, 415, and 425 grams on successive days. After this the infant's food should be about one-fifth its weight of mother's milk. When the weakly child is too feeble to nurse, we put large infants at the mother's breast, and these by energetic suction, facilitate the flow of milk. When the breast milk becomes insufficient we give sterilized milk at the end of each nursing. This is better than to alternate with each nursing, for a rest of four or six hours leaves the breast too long without excitation. The greatest fault of artificial feeding is in giving too much, the children developing indigestion, large belly, eczema, etc.

Naphtol Camphor.—

℞	Betanaphtol pulv.	gram	4.0	(ʒi)
	Camphorae pulv.		8.0	(ʒi)

Triturate till the mixture liquefies. This preparation is recommended as an application for suppurating eruptions, excoriations, wounds, cicatrices, and as a counter-irritant.—DESESQUELLE in Le Progrès Médical, June 14, 1902.

Ointment for Rheumatism.—

℞	Acidi salicyl.			
	Ol. terebinth.			
	Lanolini aa	gram	10.0	(ʒiiss)
	Adipis		90.	(℥iij)

—BOURGET in Le Progrès Médical, June 21, 1902.

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SATURDAY, AUGUST 30, 1902.

RECIPROCITY AND MEDICAL EXAMINING BOARDS.

IT is very generally conceded that the time has come for the mutual interchange of such courtesies among the medical examining boards of the various States as would permit of the acceptance by one of licenses issued by another without the formality of a renewed examination. There is an impression abroad that this friendly mutuality—a consummation devoutly to be wished—would be accomplished with much less delay than now seems probable but for the opposition, overt or covert, of certain of the present members of examining boards or of those who foresee the pleasant possibility of becoming members.

It is well understood that many of those who are fortunate enough to receive appointments as State medical examiners are closely in touch with the powers political that be and that the exertion of their influence in opposition would be sufficient to delay, at least for no inconsiderable time, any legislation looking to interstate reciprocity of licensure to practise medicine, however desirable it might seem to the profession at large.

The members of the medical profession must appreciate very highly how much those who have been most interested in medical regulation legislation and the establishment of State medical examining boards have accomplished for the uplifting of the profession in this country. Many of them have been veritably unselfish benefactors of their colleagues in their work and true humanitarians in the imposition which they have saved the general public. It would be too bad then to think of them as permitting selfish motives to intrude on their work now that so much good has been accomplished. The further extension of present advantages in the regulation of medical practice is surely to be found along the lines of interstate reciprocity.

The profession at large recognizes this fact clearly, and its members are not quite persuaded of the good faith of many of the reasons given for delay in its accomplishment. Technical difficulties of no real importance are apparently exerting most of the influence that keeps the State boards of neighboring States having practically the same requirements for licensure from the establishment of reciprocity. There is special danger of the present legal conditions, with complete absence of reciprocity, working to the serious disadvantage of the practitioner who has been for some years in successful practice in one State and wishes for good reasons apart from monetary considerations to take up his residence in another State. Cases have been brought to our notice in which very worthy members of the profession, of whose capability there could be little doubt, were compelled to put off for long periods legal registration in another State than their own because of failure to pass examination required. This failure was largely due to the fact that during the years of practice much of the readiness for answering questions in theoretic medicine acquired by cramming for examinations while at the medical school had been dissipated by attention to applied medicine. Such a state of affairs may work a serious injustice in particular cases without any corresponding benefit for the common weal to justify it.

One of the complaints that are constantly repeated with regard to the questions asked by State board examiners at recurring examinations is of the tendency to include certain questions of very limited practical importance and which can scarcely be considered as more than "catch questions." We appreciate how difficult it is to select questions that shall be suitable to the mixed classes who come up for examination. We understand very well, too, that a celestial inquisitor would fail to satisfy all comers by his selection of examination questions. There is no doubt, however, that at least some questions asked each year in many

States are open to legitimate objection because of abstruseness and lack of practical importance. It is, of course, much easier to rate a paper for a missed question than for one answered, and practical questions often involve longer answers than those on theoretical points, but it is scarcely possible for us to be persuaded, despite assertions to the effect, that such considerations have any weight in the selection of questions.

There are then certain abuses being perpetuated by the present system of individual State examining boards that call for a gradual reformation both as regards separate State requirements and examining methods. The members of the profession who have been foremost in securing our present legal status must take up the question of the further advances now become necessary, for to stand still, as is so often said, is inevitably to go back. Most of these men are themselves members of State medical examining boards or closely in touch with them and must not allow their very nearness and personal interest in the work to obscure the defects still manifest in the existing system. The medical profession naturally looks to them for the initiative to further progress in the introduction of measures and methods for the amelioration of present conditions.

THE PASSING OF OSBORNE HOUSE.

THE disposition which King Edward has made of this historic mansion in the Isle of Wight is one which at this time will appeal with the greatest force to his subjects, and one that will do much to endear him to them. As Prince of Wales he was always popular and beloved, and this generous deed in the early days of his reign, indicative as it is of appreciation of those whose health and strength have been so freely given to sustain his empire, seems as if it were a direct continuation of one of the strongest traits of Victoria—a warm and personal interest in the welfare of those who served her.

The palace, too, is one that is particularly and peculiarly associated with the late Queen. It was here that the early days of her married life were spent, and the romance of the woman, unquenched by the fierce light that beats upon a throne, found full expression in a marriage that has become historical in its happiness. There is something pathetic in the loving, tender interest she took in the place itself, endeared to her as it was by memories of the past; nor can we wonder that when bowed by the weight and cares of the longest and most successful reign that England has ever known, she should have gone back to die where all the earlier associations of the wife and mother outweighed the later pomp and dignity of the queen.

So it seems all the more appropriate that the invalid officers of the Army and Navy who began their lives in "Her Majesty's Service"—and many of whom have come so near to ending it there—should find rest and recuperation within the old gray walls and on the shady walks the Queen loved so well; and many a war-worn veteran will feel that he has not been forgotten and passed over, or left naked to his enemies in spite of the zeal with which he served his king.

On the other hand the ides of the millennium have neither come nor gone, and the rulers of those countries who show the greatest care and solicitude for the personnel of their armies and navies are certain to command the best of service in the days of their greatest need.

At all events it will give a quietus to the newspaper reports and *on dits* of the past year, which declared that it was the intention of the King to sell the place to some American millionaire, and that it was only the clause in his august and royal mother's will by virtue of which Osborne House and the immediate estate became "the appurtenances of the sovereignties of Great Britain" that prevented the transplantation of the joyous marigold and the retiring aster of the "States" to the beds of the classic roses of England.

CREMATION AND PUBLIC HEALTH.

THE importance of the more general adoption of cremation in disposal of the dead was emphasized a few weeks since by the heavy rains in New Jersey. The daily papers reported with grewsome details the washout of a cemetery, the exposure of many bodies, and even the carrying away of some of them by the rushing waters after a severe rain-storm. Accidents of this kind are of course rare, but they illustrate dangers to health that exist constantly and are as constantly ignored by the public. The presence of the bodies of those who have died from infectious diseases may at any time for many months, or even many years, after burial be the cause of further spread of the fatal infection.

Pasteur demonstrated many years ago that sheep allowed to graze upon portions of a meadow beneath which at the usual depth the bodies of sheep that had died from anthrax were buried contracted the disease. Sheep allowed to feed on other parts of the same field for purposes of control did not die. It was shown that the anthrax bacilli were brought to the surface of the meadows in the bodies of earthworms.

It is well known that in moist ground bacteria of various kinds may be carried long distances in subsoil water. Floods such as have occurred in many places throughout the country during the past summer may at any time prove an active distributing agent for infectious material deposited in the earth not far from the surface. With the modern demand for water supplies, the placing of graveyards in localities even apparently remote from centers of life does not guarantee the perfect seclusion of dangerous material that is necessary for hygienic safety.

The process of cremation is only a compendium of the ordinary chemical and biological processes that bring about decay of the body. Oxidation of the component elements with their return to the common storehouse of nature for further use takes place in an hour instead of many months. The lack of familiarity with the idea of fire in this connection makes the method seem something deterrent to nature. There is no doubt, however, that the process is more hygienic, and as our population becomes more congregated into crowded centers, there is greater necessity than ever of forestalling any and every possible danger to public health. At the present time there is need for the creation of a conservative public sentiment in favor of cremation, and physicians should realize that it rests with them to point out the evils of the older system of disposal of the dead.

ECHOES AND NEWS.

NEW YORK.

Official War on the Mosquito.—In an endeavor to exterminate the mosquito throughout the whole of New York, Ernest Lederle, President of the Board of Health, has commenced a campaign that may last for four years. Dr. Lederle has concluded after many tests that oil will stay the breeding of mosquitoes only for a few weeks. In all boroughs now are large supplies of kerosene and oils of different kinds which anybody can have upon applying to the Board of Health's representative after showing that there is an infested pond or pool in the neighborhood. This oil has already been found to be most effective in Staten Island and in Queens, especially near Rockaway and Arverne. But experts realize that after the oil has disappeared from the surface of the ponds mosquitoes will come again. Five bacteriologists are now at work with instructions to report on the difference between the Anopheles and the Culex in their habits. These are the two kinds of mosquitoes—the Anopheles being poisonous and malaria-bearing and the Culex being declared harmless.

Transportation of Trachoma.—Commissioner of Immigration Williams is much disturbed over the discovery that the Ellis Island medical staff found nearly 100 cases of trachoma among the steerage passengers on the French Line steamship La Gascogne, which arrived here Monday. Trachoma, it will be remembered, became epidemic last spring in the public schools of the city, so that the Board of Health went to the length of appointing a special commission to investigate its extent and distribution. Among the immigrants mentioned 85 cases in all are diagnosed as trachoma. Of this number 65 came over on La Gascogne and 20 on the Zeeland. About one-third of these may be released later if it is proved that they are not diseased. The people affected are Syrians, Rumanians, and Austrians, principally Syrians. The only punishment that can be inflicted on the French Line for bringing such an unusually large number of diseased persons to this country is to send the immigrants back at the expense of the company. New immigration laws, not yet through Congress, contain a clause expressly designed to cover just such cases. It gives the Commissioner power to impose a summary fine on any steamship line attempting to bring a diseased alien to any of the ports of the United States. The wording of the proposed statute is so broad that if it becomes operative no line will be likely to take the risk of bringing over such a large number of undesirable passengers in one ship.

The Tunnel and Public Health.—The Board of Health this week sent to the Rapid Transit Commission a report of Charles F. Roberts, Sanitary Superintendent, showing that the conditions existing in the excavations are in many places a menace to the health of persons living along the line of the tunnel. The unsanitary conditons mentioned were disconnection of sewers, stagnant water, the escape of sewage, the use of the excavations as dumping places, and the prevalence of foul odors. The report is a summary of the reports of various inspectors, and covers conditions in the whole length of the tunnel. Already, President Lederle said, separate action was being taken by the board against individuals among the tunnel contractors who were guilty of maintaining nuisances, but it seemed well to the board to put the Rapid Transit Commission in possession of the full facts, so that that commission could see to it that its contractors conformed strictly to the terms as to sanitation which were no doubt included in the contracts. If the commission took no action in the matter, President Lederle said, he would proceed at once against the individual contractors. Dr. Lederle went on to say that, in his opinion, most of these nuisances could and should be abated by the police. Attention was also called to the clause suggested by the Mayor as a part of the contract for the Pennsylvania Railway Tunnel, giving the Board of Health charge of the maintenance of sanitary conditions in the contemplated excavations. Such a clause, Dr. Lederle thought, ought to exist in all contracts made by the city for work of that character.

CHICAGO.

Health Department's Warning on Typhoid.—A campaign of education in matters of hygiene and sanitation is always to be commended and encouraged, whether a disease epidemic exists or not. It is largely through such literature as the health department of Chicago has been circulating that the death rate of this city has been reduced below that of any other large city in the world. In the present epidemic of typhoid there is urgent need of very thorough publicity on the question of preventive measures against this dangerous malady. It is gratifying to note that the health department is meeting that need promptly and to the full extent of the facilities placed at its disposal. While it is perfectly obvious that the discharge of sewage into the lake is a menace to the public health, it is equally clear that the present epidemic of typhoid in Chicago cannot properly be attributed to water alone, for the disease is alarmingly prevalent in many other cities, some of which are widely separated from one another, and it has attacked households which have made it a practice for years to boil or filter the hydrant water if they use it at all. The opinion is expressed by physicians outside the health department that much of the trouble is due to the condition of vegetables this year, and the health department is treating the obviously unfit vegetables in the carts of cheap peddlers to doses of kerosene. Naturally the peddlers protest, but the work of the department is most decidedly in the line of good public policy.

Infected Vegetables Seized in the Ghetto.—Inspectors of the health department made a tour of the Ghetto district on the West Side to look for vegetables and fruit contaminated with disease germs. The six milk inspectors were used for this work, and a large number of specimens were obtained. After sampling the disease-infected fruit and vegetables in a dealer's stock, the health officers sprayed kerosene oil over all the rest of it, so as to make it unfit for sale. This course was pursued with all material exposed for sale and found to be contaminated. "The taking of the milk inspectors from their regular duties," said an officer of the health department, in telling of the tour of inspection, "was no loss to the health of the public, for the fruit and vegetable question is at present much more important than the milk question. Bad milk can be readily detected and dumped into the sewer, but the suppliers of bad fruit and vegetables need a lesson, which they got to-day. The work will probably be continued, not only in the Ghetto district, but everywhere that bad stuff is sold. The Ghetto district was selected because of the prevalence of typhoid fever in it of late, and the fact that the vegetables supplied to it are largely grown on a farm fertilized with night-soil, north of the city."

GENERAL.

Belgian Surgical Congress.—This congress will be held in Brussels, September 8 to 10, 1902. Plans for the formation of an International Surgical Society will then be formulated.

Vaccination in France.—The French Parliament has approved the sanitary law rendering vaccination compulsory. The law reads, "Vaccination is obligatory during the first year of life, and revaccination during the twenty-first year. Parents and guardians are held personally responsible for the execution of the measure."

Lecture by Professor Osler.—Dr. William Osler, of Johns Hopkins University, Baltimore, will deliver a memorial address on "William Beaumont, the First and Greatest American Physiologist," under the auspices of the St. Louis Medical Society. The address will be given at the Odeon, St. Louis, Mo., Oct. 4th, at 8 P. M. Beaumont, it will be remembered, was an army surgeon who studied gastric digestion through a traumatic gastric fistula in a man named St. Martin.

Foreign Epidemics.—The Exchange Telegraph Company publishes a dispatch from Simla, British India, saying that the plague mortality is increasing at the rate of 1,000 weekly. News received from Barbados declares that the smallpox epidemic on that island is spreading in spite of the efforts of the medical authorities to check it. Doctors of Barbados anticipate terrible developments in the spread of the disease. Vaccination has been adopted, but general consternation prevails. Interisland trade has been crippled in consequence of the establishment of quarantine against Barbados.

A Physicians' Trust.—The Medical Alliance of America, a foreign corporation, has been licensed in Indiana. It is a Canadian concern, and its method of operation is novel in the extreme. For a stipulated sum, which is to be made nominal, the company guarantees to furnish all the medical attention required during the year for a family. The patrons of the alliance may select any physician they choose, and they may call on him for services as often as they like. For their payment to the company the physician's fee will be taken care of by the alliance. The company keeps up its end of the bargain with physicians by taking them into the alliance.

Medical School for the Navy.—Surgeon-General Rixey believes that newly appointed assistant surgeons of the navy should receive a special training before they are assigned to active service. Plans are now under consideration for the establishment of a school for this purpose, in connection with a new naval hospital to be located on the site of the Naval Observatory in Georgetown. The medical school will really be an adjunct of the hospital, though no new buildings will be needed for that purpose. While newly appointed assistant surgeons are required to be graduates of medical colleges, they have never had training in the work of the navy, such as the keeping of the medical journals aboard ship, nor have the young officers had much experience in bacteriological and laboratory work. To supply this deficiency will require several months of special instruction. The first step in this direction has been the issuance of orders to the Medical Examining Board at New York to come to Washington and constitute the faculty of the new school.

Koch and Garnault.—The Berlin correspondent of the Figaro has succeeded in making Prof. Koch break his long silence in reference to the various attempts to disprove his theory of the non-transmittability of bovine tuberculosis to human beings. The interview is interesting because it shows that what has been popularly accepted as Prof. Koch's theory is not exactly correct, a fact which may easily be verified by reference to the original "Vortrag." The correspondent of the Figaro went to see the German savant to ask his opinion of the experiments carried on by Dr. Garnault of Paris. Dr. Garnault cut his arm and covered the wound with a cataplasm taken from the diseased part of a cow's lung. After having exposed himself to what, according to his version, Prof. Koch considered imminent danger, the French physician tried to interest Koch in the experiment. Failing in this, he published an article in the Figaro, promising to follow it up by others in the Neue Freie Presse of Vienna, showing that Prof. Koch had admitted by his silence that his theory was incorrect. Indeed, the French medical press even announces a book on the subject.

In reply Prof. Koch said: "I consider Dr. Garnault's experiment not only worthless and unscientific, but also absolutely without danger. In order to prove or disprove anything, Garnault ought to have inoculated himself with a pure culture of bovine tuberculosis matter. In this way he would have infused millions of bacilli into his system. This was the course adopted by Prof. Baumgartner, who vaccinated a number of patients dying of cancer. They were not infected with tuberculosis, although it is admitted that both diseases can exist at the same time in the same body. This question should be left to the men of science. In England, America, Germany and other countries serious investigations are being carried on by commissions, and it may take years before a final decision in the matter is reached. I am also continuing my experiments, but do not rush into public print with my results, as Dr. Garnault, hankering after theatrical effects, has done. In due time I shall publish my conclusions. The opinion which I defended at the congress in London I still adhere to. I would like to call attention to the fact, however, that I limited myself to the expression of a theory which had previously been advanced by American men of science. The public has voluntarily accorded me the honor of parentage. But let us get down to facts. I never said that infection was impossible; all I maintained was, that it could hardly have serious consequences. I further said that bovine tuberculosis could not be transmitted into the human system by means of milk. Milk is no infective medium, as little for tuberculosis as it is for rabies. This is an accepted theory. Still, has anybody proved it? I admit that I, for one, am still in doubt. At the same time I insist that infection through milk is so rare that I consider it foolish and extravagant to compel the world to sacrifice millions every year for useless preventives. Would it not be better to erect sanatoriums with this money?"

Cholera in the Philippines.—Discouraging reports are received by the War Department at Washington of the increase of cholera in the Philippines. The health service of the Manila city government is overwhelmed with the work that has fallen upon it, and the health officials in all the interior towns are in the same plight. The epidemic is not confined to the low-country towns, but has been under headway in Dagupan and the mountain towns north of there for a month. An efficient system of reports has been maintained, and the authorities know what they have to contend with. The number of deaths in the provinces ranges from 350 to 450 daily. The beginning of the rainy season makes the danger greater, as the streams carry the cholera germs everywhere, and spread the disease. There are on an average from 50 to 70 new cases daily in Manila, and nearly as many deaths. There are many cases on the ships in the bay, and this is an increased cause of danger, as the quarantine authorities cannot get at them, and violations of the health regulations are constantly occurring. The worst occurrence is the death of natives who have crawled off uncared for, and have died in out-of-the-way places. It is a common thing to find bodies of victims floating in Pasig River, and in one day recently six such bodies were fished out. The disease has in a number of cases broken out on ships that have been in close quarantine for several days. It is said this is due to using the water of the bay, which is very impure. The ships have condensers, but few distil the water and so remove all danger of infection.

Obituary.—Dr. W. F. Hendrickson, instructor in pathology in the University of Pennsylvania, died August 23 at the Union Protestant Infirmary in Baltimore. Dr. Hendrickson was born in Baltimore, and was but twenty-six years old. He was a son of the late William F. Hendrickson. He was graduated at the Johns Hopkins University in 1896, taking high honors. Then he took up medicine in the medical school of the university, and obtained his degree in 1900. He went to the University of Pennsylvania soon afterwards. Dr. Hendrickson was called to California on one occasion, and on another to Des Moines, Iowa. He also was invited to teach further north.

Dr. Aaron Friedenwald, an eminent physician and noted philanthropist, of Baltimore, died of cancer August 26, aged sixty-five years. Dr. Friedenwald was a son of Jonas Friedenwald, a philanthropist. He studied abroad, and was a pupil of Virchow. Since 1873 he had been a member of the faculty of the College of Physicians and Surgeons. He was a member of the medical and chirurgical faculty of Maryland, of which he was president. He was the first president of the Maryland Ophthalmological Society, and was a foremost member of the American Medical Association. In 1863 Dr. Friedenwald was married to Miss Bertha Bamberger of Baltimore. His children are Drs. Harry and Julius and Messrs. Norman and Edgar Friedenwald.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

CORRECTION OF SADDLE-NOSE BY PARAFFIN INJECTIONS—DIFFERENTIAL DIAGNOSIS OF EPILEPSY AND HYSTERIA—PATHOLOGICAL ANATOMY OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM—ARTIFICIALLY PRODUCED DISEASES OF THE MIND—ECLAMPSIA AND BLOODLETTING—THEORY AND THERAPY OF TABES DORSALIS.

THE various scientific societies, local and national, of the German Empire are usually very busy during the last quarter of their scientific year, just before the summer vacation. The subjoined important sessions occurred and the best papers are abstracted as follows:

MANN, at the Gesellschaft für Natur- und Heilkunde zu Dresden, March 1, 1902, read a paper on the correction of saddle-nose by the subcutaneous injection of paraffin accompanied with demonstrations. If vaseline at the body-temperature and the consistency of ordinary salve, made fluid by heat, is injected into the subcutaneous tissue in man with a Pravaz syringe there will result at the point of injection a more or less round tumor in size according to the quantity of the paraffin ointment employed. The secondary reaction in the tissues is hardly worthy of note and the mass injected remains usually enlarged at the point of entrance. Various authors within the last few years have discussed this subject, notably, Gersuny, in 1900, contributed "Concerning a Subcutaneous Procedure" in the Zeitschrift für Heilkunde. He describes in this paper his treatment of a young man who had been castrated on both sides on account of advanced tuberculosis of the testis. This patient was anxious to cover his defect in order to engage in the military service. This was accomplished by the subcutaneous injection of paraffin. The same author also reports a case in which he secured improvement of speech by making injections beneath the gums, and in retracted scars of the skin, like sunken cheeks, saddle-nose, defects over the brain, from scar-tissue, etc. And similarly he suggests that this paraffin injection process will be found available in various grades of incontinence in hernia, in plastic work following amputation of the breast. In 1901 Luxemburger reports in the Münchener medicinischer Wochenschrift two cases of hemiatrophy of the face progressive in type, in which he corrected more or less successfully by Gersuny's method the cosmetic results of the disease. Stein in von Bergmann's clinic has also corrected saddle-nose with success and damage to the gums after operations upon them in the same manner. Moszkomicz and Sachs both report cure of syphilitic saddle-nose in this manner. Basing his conviction on these reports Mann attempted with considerable success to correct saddle-nose in three cases of syphilis. Although in his cases the results were not by any means ideal the improvement was sufficient to illustrate the point that this may be found after improvement in the technic has been made a very serviceable means of curing this condition. He also honestly reports the causes of his partial failures in these cases in the following terms: The operation is simple enough. The needle of the Pravaz syringe is placed into the root or tip of the nose and carried downward or upward, as the case may be, to the point of greatest deformity, and then under suitable pressure the paraffin is deposited about this point. The amount, of course, to be injected depends entirely upon the degree of the deformity. Pressure on the injected mass to make it conform with the outlines of the normal nose is then made under an ethyl chloride spray. Instead of a single deposit beneath the skin it is probably better to make a number of them side by side. The great importance of making pressure for resistance against the undue spread of the paraffin is shown by the fact that in one of his patients the material traversed upward to the forehead and made there a most undesirable tumor mass. The skin here had to be opened, the mass turned out and then the injection repeated. At this operation it was easy to demonstrate masses of paraffin as they lay in the spaces of the subcutaneous tissue. It is necessary to make this whole procedure very aseptic. The natural sequence of the injection is commonly a little burning, redness, and feeling of pressure at the point. During the same day, however, these symptoms usually disappear. Concerning the possible toxicity of paraffin injection Myer has contributed the results of experiments which show that very large deposits of paraffin, even to the making of a mass the size of a breast, can be carried out without harm, although occasionally symptoms may arise. In the correction of saddle-nose such poisonous results are not at all to be considered. However, both Lesser and Schaeffer suggest that it is well to first aspirate the region and then to inject. What in the course of time becomes of this deposit of paraffin within the body must be left entirely to the future. This much is known, that for a few years there is apparently no change whatever within it. Probably after a longer time it will be found necessary to make secondary injections in order to fill in the gaps between those of the primary process. However, up to the present time it is evident that this method of correction is exceedingly serviceable, and can, aside from a few technical difficulties, which are surmountable, be recommended for general use.

HOCHE, at the twenty-seventh annual meeting of the South-German Neurologists and Psychiatrists, read a contribution on the "Differential Diagnosis between Epilepsy and Hysteria." Both of these diseases may be considered neuroses. Pure hysteria is of functional nature in the sense that we do not know at the present time and probably will never know any definite pathological basis for it. Epilepsy, on the other hand, undoubtedly possesses a true anatomical basis, but we do not know anything about it at present. The differential diagnosis between these two diseases becomes above all other cases difficult when each is accompanied by loss of consciousness during a seizure. In the majority of these cases one who has had sufficient experience finds little difficulty in judging the true condition present. In a selected few cases there is not enough about the characteristic attack to make the diagnosis certain. There is no single symptom which is absolutely distinctive of epilepsy, not even a bitten tongue and changes in the reaction of the pupil to light. The hysterical fixation of the pupil is not due to a disturbance of the reflex arc, but to an abnormal state of the internal eye muscles. As an element in the extreme difficulty of making a differential diagnosis the existence a true hystero-epilepsy must not be overlooked. In doubtful cases only observation of the case will settle the matter.

ERB of Heidelberg presented the following data as to the "Pathological Anatomy of Syphilis in the Central Nervous System." He made the following classification: (1) A group of cases in which there may be found definite changes in the central nervous system, such as myelitis meningitis, myelitis arteritis, localized and diffuse degenerations, and yet nothing which may be regarded as typically syphilitic; (2) definite primary lesions of the central nervous system or diffuse degenerations which partake of a truly specific character. In addition to tabes dorsalis, there may be found meningitis, alterations in the blood vessels, gummata and similar conditions; (3) primary sclerosis without truly specific characteristics and without other specific lesions in individuals who are certainly syphilitic, also a class of lesions in the various systems of the body. About 70 to 90 per cent. of all tabes dorsalis belong to this group. The lesions of this third group are not to be considered as properly postsyphilitic, but as truly syphilitic as the typical changes.

BLUM of Frankfort gave the results of experiments upon dogs in which psychical diseases had been artificially produced. He found that a pure milk diet prevented the rapid advent of death. The animals, however, showed various disturbances of the psychical state, namely, hallucinations, biting the air, efforts to stand on their head, scratching of the nose and similar characteristic actions. Death always followed after bodily and further psychical depreciation.

THIELE, at the Medicinische Gesellschaft in Chemnitz, April 16, 1902, read a paper on "Eclampsia and Bloodletting." After a brief review of the modern notions of the pathogenesis and treatment of this disease, the author reported four cases in which he obtained remarkable results from phlebotomy. Three were cases of puerperal eclampsia after parturition. He finds that judicious bloodletting frees the heart from its burden, stimulates the blood-producing organs to great activity and promotes perspiration to a remarkable degree. In eclampsia gravidarum he found exceedingly prompt results follow its use, cessation of the seizures, return to consciousness, sweating, and disappearance of albumin after one or two days.

H. **HAENEL**, at the Gesellschaft für Natur- und Heilkunde zu Dresden, April 12, 1902, contributed a paper on the "Theory and Therapy of Tabetic Ataxia." Up to the present time, excepting the clinical characters of the disease and its pathological anatomy, the entire question of treatment has remained open because usually the results of treatment are not good. Frenkel has, however, for the first time evolved a new method of treatment on rational lines and built it up rationally. His treatment by manual and podalic practice tactics was evolved from his notions of the ataxic elements of the disease. From the fact that a co-ordinated movement necessarily requires some relation with the outside world, it follows that it really depends upon a centripetal impulse, namely, upon sensibility. The arguments which have been urged against the theory of a sensory basis of the ataxia are really three: The occurrence of ataxia without any damage to the sensibility; the disturbances of sensation without ataxia and the indefinite and deficient parallelism of both conditions in a large number of cases. Through thorough methods of examination and a full valuation of the various kinds of sensibility, especially sensibility of the joints and muscles, the various complicated relations are to be explained in the compensatory application of contraction in disturbances of the joint sensibility, of the attitude of the trunk and pelvic muscles in standing and walking, etc. It then becomes more evident that co-ordination is to be explained as a sensory function. The conditions of a rational treatment of locomotor ataxia are that the central nervous system shall be capable of receiving impressions and then by practice evolving the centrifugal impulses which by degrees become more efficient to cause co-ordination. In this manner the maximum amount of co-ordination is gradually produced. In an ataxic the co-ordinated movements are produced exactly as in the healthy individual, namely, all possible resources called into play, especially the sensory functions of the organs of sense, and particularly the eyes.

SOCIETY PROCEEDINGS.

AMERICAN PROCTOLOGIC SOCIETY.

Fourth Annual Meeting, Held at Saratoga Springs, New York, June 10 and 11, 1902.

FIRST DAY—JUNE 10.

The Society was called to order in the parlors of the United States Hotel by the President, Dr. Thomas Charles Martin of Cleveland, Ohio.

Dietary in the Treatment of Rectal Diseases.—Dr. A. P. Buchman, of Fort Wayne, Indiana, said that beginning with hemorrhoids and ending with proctitis, catarrhal or otherwise, the whole pathological ensemble is primarily referable to what has been over a long time, and what is now daily ingested in the food supply. Indigestion, even in its most elementary state, is overlooked and underestimated. Digestion is not fermentation. It is a process of decomposition of molecular particles and a recomposition of chemical elements by which toxins and toxic substances are formed. Carbon dioxide in excess in living tissue for too long a time will produce paralysis as to function, and finally organic disintegration. Catarrhal proctitis is often many feet away from the point treated. Give well regulated diet for chronic constipation. Internal hemorrhoids disappear under palliative treatment and regulated diet. Regarding the intestinal tract as a single organ he spoke of the difference between digestion and fermentation. By scientific dietary regulation certain surgical procedures in this field can be reduced to the smallest common multiple. Writer reported cases. Conclusion: If the dietary care of patients were prescribed with the same accuracy and care that is carried out along drug and surgical lines, the value of the method would not be the subject of so much neglect as it is at the present time.

Dr. Samuel T. Earle of Baltimore called attention to the fact that we should reflect in these cases before resorting to the operation.

Diagnosis and Treatment of Proctitis.—Dr. Howard A. Kelly of Baltimore remarked that the special importance of the subject alluded to lies in the fact that the affection is, for the most part, unrecognized and so allowed to run a chronic course. The local symptoms are often vague and in women they give rise to a disease of the uterus or ovaries. Some of its symptoms are decidedly serious in character, such as the poisonous character of the mucous secretion of the bowel. When associated with other pelvic diseases, it is apt to be overlooked. Cause is generally obscure. The better recognition of these affections hinges on the diagnosis. If such a case is examined per vaginam, empty rectum feels like a flattened fibrillated cord, easily rolled from side to side. Details of pathology were given and topical and dietary and drug treatment and massage recommended.

Some Unusual Causes of Proctitis and Diarrhea.—Jas. P. Tuttle of New York said that almost all forms of proctitis are associated with diarrhea, excepting atrophic catarrh. Most types occur in tropical regions and are due to specific micro-organisms. Treatment: Prolonged rest in bed and irrigations with fluid extract of krameria in irrigation solutions. Diet of milk and meat exclusively was followed by improvement.

President's Address.—Dr. Charles Martin of Cleveland spoke on the Relation of the Rectal Valve to Obstipation, a clinical research. A glance at his table presented showed that of 40 cases operated prior to two years ago, two were not improved; one had no complications discoverable; the other was subject to recurrent invagination of the sigmoid to the rectum; five patients were improved; three of these had complications; one of these had gonorrheal peritonitis and malignant disease of the cervix uteri. Another has been twice subjected to laparotomy and had Maeckel's diverticulum removed and oophorectomy performed, and the third had movable right kidney and an ovarian tumor. Of the six patients who suffered recurrence of obstipation, three were those whose condition after operation had been improved only; of the remaining three recurrences, one had been subjected to hysterectomy, and of the other two (cases 15 and 26) I have not been able to get a report. In a total of 40 cases, five were improved and 33 cured.

Treatment of Hemorrhoids.—Dr. George J. Cook of Indianapolis said that in 1876 Andrews of Chicago gave statistics which were obtained directly from advertising specialists, showing that in 3200 cases of hemorrhoids treated by injection of caustics there were 13 deaths due directly to treatment, besides eight cases of embolism of the liver, 10 cases of dangerous hemorrhage, numerous cases of severe pain, abscess, fistula and ulceration. Since that time there has been no evidence to indicate that better results have been obtained. A report of six cases of deaths due directly to this treatment is given covering the past 18 months. All were treated by advertisers but subsequently came under the care of regular physicians from whom reports were received. In every case an abscess formed as the result of the injection and septic infection followed, resulting in death in from six to ten days. In one case was pneumonia; in another thrombus of the hepatic vessels. Many of the bad results following this treatment are attributed to the methods of injection. Having the piles protruding through the anus and then injected when the vessels were distended with blood is bad practice, because when the tumors are replaced much of the coagulated blood is forced from the pile tissue into the surrounding vessels and may cause abscess or sloughing. The better method is to use the tube speculum, and after the blood is pressed out of the tumor inject the caustic, thus avoiding the formation of blood-clots in the vessels. Many cases were treated in this way with only two unpleasant results. In these cases there was secondary hemorrhage which was easily controlled. This method of treatment is advised only in cases where a general anesthetic cannot be administered. The treatment of piles by injection is the most dangerous method in use, as is shown by statistics. The relief in the majority of cases is temporary, averaging about four years.

In discussion Dr. J. M. Mathews of Louisville said that the proctologists should either endorse this treatment or denounce it. In his infirmary to-day are two women, one of whom was treated for three weeks in New York by the injection plan. She does not seem to have any hemorrhoids. On examination he found a hole in the gut. Another woman had the same injection plan and the same result. He has seen two cases of violent hemorrhage endangering the lives of the patient and has also seen much injury done, so that he does not believe it a rational treatment, as it is so easy to establish a dangerous condition. Moreover it is not so radical a cure and endorses quack treatment. We can very well see that by injecting a tumor of this kind an artery may be injected and a thrombus established. As the author said, he would only use it where it was dangerous to give an anesthetic; he thought cases were often chimerical. They have given ether or chloroform where they have had heart murmurs.

Dr. Geo. B. Evans of Dayton, Ohio, said that in 11 years he has never injected a single pile. It is not radical. He was influenced to take this stand by Kelsey, Tuttle and Mathews in 1891. Fully 50 per cent. of the cases have previously had the carbolic acid treatment. These cases had some kind of fistula or fissure, and he prefers keeping his hands off the hypodermic.

Dr. L. H. Adler of Philadelphia was in favor of the treatment. Some patients absolutely refuse to have an operation performed, and he thinks the profession entirely wrong in condemning the method *in toto*.

Dr. J. Rawson Pennington of Chicago said that in his estimation there are too many "I thinks" and "I guesses" in medicine. The quack discovers or originates some method, and the profession condemns it and then takes it up. He had had little experience with carbolic treatment, but on general principles he did not like it. Others may have had good results with it but he gets the best results with the clamp and cautery and the ligature.

Dr. George J. Cook in closing the discussion said he used the injection method as a last resort. When he does it, he injects only one pile at a time.

SECOND DAY—WEDNESDAY, JUNE 11.

Causes and Treatment of Rectal Abscess.—Wm. M. Beach of Pittsburg stated that the location of an abscess is usually definite and circumscribed about the rectum by the limits of the pelvic fascia and integument. There are the marginal and deep seated varieties. The ischio-rectal is one of the latter. Trauma, mechanical, chemical, thermic, secondary processes, bacteriologic, such as gonorrhea, syphilis, tubercular, bacillus colon communis, zymotic diseases and idiopathic, seem to be the exciting causes which vary according to the location of the pus areas. As soon as pus is determined freely evacuate it. Introduce intestinal antiseptics and apply cold. Never poultice.

Dr. James P. Tuttle of New York said that the prompt and radical treatment of this inflammatory condition around the rectum is perhaps the means of preventing rectal diseases. Four out of five fistulæ can be avoided if the perirectal inflammatory condition is treated in the beginning.

Treatment of Rectal Fistulæ.—Dr. Floyd W. McRae of Atlanta advised treating fistulæ by excision of the entire fistulous tract, bringing the raw surfaces together by sutures with a view to securing healing by first intention. Many cases and authorities were cited. This method of procedure saves the victims of this disease an enormous amount of suffering. Has had very good success. Operation described and two cases reported.

In discussion, Dr. J. Rawson Pennington of Chicago, described a modification of this operation, and Dr. S. T. Earle of Baltimore thought that Dr. Pennington's idea was very much more difficult than that of the author. When a fistulous tract is laid open it is not difficult to find the openings of other tracts. Dr. George J. Cook of Indianapolis said that Dr. Morris of New York always filled the fistulous tracts with plaster of Paris and then dissected the whole thing out. The president, Dr. Martin of Cleveland said that patients who are stout should not be selected for this operation. Patients who have a thick pelvic floor are not good subjects for this operation. Where there is much induration he advised taking baths for some time, so that the induration will be lessened. Traction is made on the fistulous tract by means of a forceps and over the ischio-rectal space a broad adhesive band of T bandage is placed.

Dr. McRae in closing the discussion said he thought that Dr. Pennington's method a great deal more difficult. Where there is more or less retention of pus it is unfavorable for treatment. The real points of merit in this method are the laying open of these tracts and cleaning each one separately and a thorough dissection of all the indurated tissue.

Dr. J. Rawson Pennington presented pathological specimens showing various valves of the rectum.

Excision of the Cancer of the Rectum.—Dr. Lewis H. Adler of Philadelphia called attention to the importance of this subject. The disease in the rectum has no marked manifestations, until the trouble has progressed to such an extent that complete ablation of the growth is impossible. The author antagonizes any and all attempted excisions of the rectum for malignant disease. To assume such an attitude would be the height of folly; it would consign the patients to certain death. The author has had some 217 cases, and of this number has excised the rectum in three, curetted the growth in seven and colostomized 27. Relative to the three cases of excision, one patient died within the year following operation of cancer of the liver; another died five years after the excision at the age of 77 years, and at the autopsy no trace of the disease was discoverable—death being due to senility; the third patient is still alive and active—though past 70 years of age—the operation having been performed six years ago. Cancer of the rectum at the stage usually discovered by the surgeon, is less amenable to the knife than cancer in other portions of the body. Operation is followed by cure in a very small proportion of the cases, and the dangers following excision are great, and the results as to comfort anything but satisfactory; yet in cases seen early, much good can be accomplished by the operation.

Colotomy Complicated by Tumors.—Dr. B. Merrill Ricketts of Cincinnati said colotomy may be attended with many complications, due to benign or malignant neoplasms. He reported two or three complicating cases. Hernia may complicate hydrocele, aneurism, adhesions, and cysts are frequently found by the surgeon in colotomy.

Dr. J. Rawson Pennington of Chicago described a case of a malignant growth of the rectum on which a colostomy was done and the X-ray later used. For a period of five months no pus has been seen. The patient had violent pains in the legs and abdomen which disappeared after the X-rays had been used. Dr. L. H. Adler of Philadelphia in closing the discussion said that all patients gained in weight, sometimes as much as 25 pounds. He also called attention to the fact that cancer was very prevalent in the sooty regions of our country.

Treatment of Hemorrhoids by Enucleation.—Dr. Geo. B. Evans of Dayton said that there are two classes of internal hemorrhoids, the capillary and the venous. Capillary is in reality a rectal tumor. Case described. Does not believe in tamponing, nor the use of the Pennington plug. In this operation, as in all others for hemorrhoids, we fail to find an ideal one. In its application, it is no doubt restricted. In cases in which the varicosities are comparatively accessible, when from any reason there is no bowel paresis and the plug can be placed securely and remain for a time, thereby insuring protection from hemorrhage and infection, it is no doubt a very agreeable and satisfactory operation to both patient and operator; but it seems likely that it would be difficult to be able to determine in every instance in which apparent weakness of the operation may manifest itself. Eleven successful cases reported.

Dr. William L. Dickinson of Saginaw, Mich., expressed surprise at the two bad results of this operation. He packs all his cases with iodoform gauze coated with sterilized vaseline. Dr. J. Rawson Pennington of Chicago said that a hemorrhoid is an angeoma, a diseased condition in the submucosa. He expressed considerable surprise at such unfortunate results with this operation. In 225 cases he had only two hemorrhages. The patient can usually get up four days after operation. Dr. Geo. B. Evans in closing said that in his case the bleeding vessel could not be found; it was behind the tampon. He likes this operation very much better than the clamp and cautery.

Report on Ulcerations of the Rectum.—A complete pathologic report was carefully gone over in detail by Dr. S. T. Earle of Baltimore.

Some Interesting Cases of Rectal Diseases.—Dr. Louis J. Krouse of Cincinnati presented some very interesting facts of rectal diseases, one of abscess, one of ulceration with cicatrices, and one of ischio-rectal abscess.

Election of Officers.—The following officers were elected to serve the ensuing year: President, Dr. Samuel T. Earle, Baltimore, Md.; Vice-President, Dr. Floyd W. McRae, Atlanta, Ga.; Secretary and Treasurer, Dr. William M. Beach, Pittsburg. Executive Council: Dr. George J. Cook, Chairman, Indianapolis, Ind.; Dr. Lewis H. Adler, Philadelphia, Pa.; Dr. Thomas Charles Martin, Cleveland, Ohio.

Adjourned to meet at the time and place of the American Medical Association.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Tuesday, July 8, 1902.

The President, Wendell Reber, M.D., in the Chair.

Some Unappreciated Causes of Anemia in Childhood.—Dr. W. C. Hollopeter read a paper on this subject in which he commented upon the fact that the period of primary dentition was often a time of ill health, which was frequently complicated by improper food, and sooner or later results in disturbance of the child's blood, producing marked anemia. After making brief reference to the anemias of acute diseases and specific blood changes, the author stated that he believed dental decay, with consequent pus formation and septic involvement of the alimentary tract, was the foremost cause of anemia in children and that most frequently overlooked by the general practitioner, although it is pretty generally recognized by the pediatrist. Too often the care of the first teeth is neglected, resulting in hyperemia of the aural cavity, with numerous alveolar abscesses and the consequent passage of pus into the stomach. With the teeth in this condition proper mastication is impossible, which results in derangement of the gastro-intestinal tract and general catarrhal inflammation, producing irritability, and laying a foundation for anemia that requires years of correct living to rectify. The difficulty of curing gastro-intestinal catarrh, should it reach the chronic stage, was commented upon, and the value of preventing the occurrence of this condition emphasized, which it was thought could only be accomplished by much medication, careful regulation of the diet and régime and careful toilet of the teeth. The period of second dentition was thought to be a time of great risk as the nervous system is unstable and particularly liable to be affected. Among the conditions remarked as a result of the neglect of the teeth were stomatitis, ulceration, sloughings, gangrene, pyorrhea alveolaris, periostitis, alveolar abscesses, necrosis, recurrent tonsillitis, pharyngeal otitis, glandular inflammation, cellulitis and possibly meningitis. The opinion of a former coroner of this city that 50 per cent. of all the deaths of children coming under his observation were due to aural sepsis was quoted. A second frequently unrecognized factor is mouth breathing, due to nasal stenosis following whooping cough, measles, influenza, resulting in catarrhal inflammations and hypertrophied turbinated tissue, serving to block the channel, which is indicated by the flattened chest, vacant look around the mouth, due to a deficiency of oxygen causing anemia. The value of careful toilet of the nose and throat during the disease in order to prevent these conditions was remarked. As a third causative factor was mentioned eyestrain, especially during school life, and which is often due to poor print and defective light and ventilation. The opinion was expressed that many of the conditions of so-called headache, catarrh of the stomach and nausea were really due to eyestrain and the reason that better results were not secured in treatment was owing to therapeutic measures being directed to the manifest symptoms, while the real cause of the condition was unsuspected. In concluding the author stated that he believed asepsis of the mouth was of as much importance to the physician as was asepsis to the surgeon.

Dr. E. E. Graham in opening the discussion stated that he felt in considering anemia in children, we should take into consideration the fact that the composition of the child's blood is very different from the adult's, the proportion of the white blood corpuscles in the former being far in excess of that in the latter. It was also believed that in anemia there are substances in the blood intimately associated with many diseases. While splenic enlargement is an important factor in the diagnosis of anemia in the adult, cases have been observed among children in which this organ was markedly increased in size, where the anemia was but moderate. In regard to secondary anemia, the speaker stated that he believed almost any disease was sufficient to produce a certain amount of anemia in a child, which he attributed mainly to two causes: (1) decrease in the production of blood, caused by poor food, improper hygiene and poor assimilation; and (2) increased destruction of the blood cells, which is particularly exemplified in nephritis, diphtheria, tuberculosis and cases of chronic suppuration and effusion, especially pleural effusions, citing a case in which three pints of pus had been removed by means of the aspirator, in which the anemia was as marked as in a case of pernicious anemia. In all such cases of anemia, the hemoglobin is proportionately and in some cases more reduced than the red blood cells, and leucocytosis may or may not be present. In the treatment of the condition it was considered important to treat rather the cause of the disease than the disease *per se*, and prophylactic measures to prevent the development of the cause, such as correct hygiene and diet, were recommended. Iron and arsenic were regarded as the most valuable drugs. The prognosis was felt to depend upon the age of the child and the cause, the younger the child, the graver the prognosis. While dentition *per se* was not regarded as a very important factor in the production of anemia, it was felt that the escape of pus from the gastro-intestinal tract into the stomach and the consequent irritation of the gastro-intestinal tract, would account for a large percentage of the cases.

Dr. E. W. Tully emphasized the value of discovering and treating the cause of the anemia rather than the manifest symptoms, and stated that he believed in many cases there were several causes. Among the causative factors were mentioned adherent phimosis, dentition and eyestrain.

Dr. Howard S. Kinne felt that while no doubt anemia was frequently caused by catarrhal conditions, it was highly probable that in a certain proportion of the cases the order was reversed and the anemia acted as the inducing agent in producing the catarrh. Iron was thought to be indicated and the peptomanganate of iron was felt to be the preferable method of administration, being more palatable and equally efficient with the other preparations.

Dr. Daniel Longacre felt that the escape of illuminating gas from the mains might be responsible for a certain proportion of the anemic cases.

Dr. Samuel Wolfe stated that while he recognized the value of proper preservation of the teeth, and felt that carious teeth and bad hygienic conditions of the mouth were no doubt responsible for some of the anemias in childhood, still he believed that in many instances an impaired and defective condition of the blood resulting from heredity or any other cause often led to decay of the second teeth. He felt that in the treatment of these conditions while proper hygiene of the mouth and teeth would prevent a portion of the vicious circle, we must go deeper into the cause of the condition in order to bring about a rapid cure, particularly in cases resulting from eyestrain, phimosis, defective nutrition and metabolism, which fact was substantiated by the frequent occurrence of anemia in children with defective vitality and weakened conditions. Malaria was also felt to be a frequent cause, and should be considered in all cases.

Dr. H. Brooker Mills stated that he believed faulty dentition as a cause of anemia should be divided into three classes: (1) absorption of pus, due to suppuration of the gums; (2) indigestion, due to insufficient mastication, which is in turn due to bad teeth; and, (3) indigestion, due to insufficient mastication, when the teeth are good; the speaker felt that the larger proportion of the cases came under the latter class. A case was cited in which the patient had died of auto-intoxication due to constipation, which was attributed to indigestion due to faulty dentition or rather improper use of the teeth, which were in good condition. Another case was noted in which gradual bleeding from the gums (presumably due to some purpuric condition), produced very profound anemia finally resulting fatally. Eyestrain and mouth breathing were regarded as frequent causes of anemia and in many instances correction of these conditions had relieved the other symptoms.

Dr. Carl Lee Felt stated that he believed obstructed nasal breathing played an important part in the production of anemia, and while in many cases operated on for adenoids no adenoids were found, the anemic condition of the patient was markedly improved by the removal of the hypertrophied tissues. Faulty dentition and carious teeth were also felt to play important rôles in this direction, and in the majority of such cases the anemia is aggravated by bad hygienic and dietetic surroundings.

Dr. William H. Good felt that fermentation going on in the mouth caused by constant eating, especially of sweets, was responsible for the production of a certain amount of the dental caries, and that if these dietary indiscretions were corrected, it would prevent the formation of the conditions in the mouth and gastro-intestinal tract.

Dr. Wendell Reber stated that while he did not feel eyestrain was responsible for the proportion of secondary anemias which are sometimes accredited to it, yet he believed that in a child with a weak visual apparatus subjected to the conditions present in the ordinary schoolroom, secondary symptoms, such as headache, nausea, dizziness and vicious appetite, are apt to be produced, which are frequently in conjunction with anemia; and very often the correction of the ocular condition will be followed by a disappearance of the other symptoms.

Dr. Hollopeter in closing stated that he had in mind dental caries in relation to second dentition, rather than primary dentition as a causative factor of anemia, and he also felt that neglect to use the teeth was probably a more important point than was generally recognized.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eighth Annual Meeting Held in Washington, D. C., June 2, 3 and 4, 1902.

Charles W. Richardson, M.D., of Washington, D. C., President.

FIRST DAY—MONDAY, JUNE 2.

The meeting was held in the Cosmos Club, and was opened by an Address of Welcome, by Dr. George M. Sternberg, Surgeon-General of the United States Army. He welcomed the society to Washington as a center of scientific work, and to the Cosmos Club, of which he is the President, as the center of scientific work in the city. He said that he was glad that physicians in Washington were recognized, as they should be, as true men of science.

President's Address.—Dr. Charles W. Richardson of Washington, D. C., delivered this address. He dwelt upon the university and scientific life of Washington, and the congenial surroundings for scientists. Touching upon the methods of teaching the specialties in medical schools, the opinion was expressed that the plan of compelling instruction in the special as well as in the other branches had led to undue crowding of the curriculum, and had been disappointing in its results. The instruction in the specialties, he thought, should be so planned as to supplement rather than to supplant the major branches, of which they form an integral part. Attempts to turn out full-fledged specialists should be promptly checked. Theoretically, the elective system was ideal, yet the tendency in undergraduate life was towards too great narrowing by the elective system, and he thought in the long run the elective student would be overtaken and passed by those who had received a broader education. In the opinion of the speaker it was best to develop the specialist by post-graduate teaching founded upon a broad general education in medicine. Speaking of the condition of the society, the President said that there were now 233 names on the roll, and that the section meetings had been better attended than in former years. A new departure had been made this year in the conduct of the annual meeting by establishing a pathological exhibit.

Aural Bougies.—Dr. George L. Richards of Fall River, Mass., said that a few years ago he had spoken about the use of aural bougies for the relief of earache and otitis externa. He now desired to exhibit these bougies, which he had had made. They could be done up in tin-foil or dispensed in lycopodium powder. After dipping in warm water they are inserted in the external auditory canal. They are composed of morphine, atropine, cocaine, carbolic acid and gelatino-glycerine. The following is the formula, which is a modification of those introduced by Gruber: Carbolic acid, $^1/_{16}$ minim; fluid extract of opium, $^1/_7$ minim; cocaine, ¼ grain; atropine sulph., $^1/_{14}$ grain; enough water, gelatin and glycerine to make a proper mass which will readily dissolve at the body temperature. These bougies are the size of a quill and half an inch long. In his experience, earache had been aborted by this means in considerably more than one-half of the cases occurring in children.

Exfoliation of External Auditory Meatus—Fibromyoma and Foreign Body.—Dr. M. D. Lederman of New York presented several specimens. The first was a specimen showing exfoliation of the external auditory meatus, occurring in a long-standing suppurating case.

On removing a polypoid formation this mass had been found lying loose in the canal. After it was removed the discharge stopped in a comparatively short time. The second specimen was a large fibromyxoma which could not be removed by the snare, but required evulsion. Suppuration ceased after removal of the growth without any secondary applications. The growth was attached to the attic and though a large perforation of the drum existed, it healed over under antiseptic treatment. The third specimen was a foreign body for the removal of which several unsuccessful attempts had been made by others. By taking off the auricle the body was removed, and the auricle was then sutured back in place. The pebble could not be seen through the external canal, as the inner third of the canal was filled with granulation tissue, which surrounded the foreign body. The probe detected a hard substance through the granulation tissue. Attempts were made to remove the stone through the canal but the pebble had formed a cavity from which it could not be dislodged. After displacing the auricle and removing the granulation tissue, the stone was extracted with a dull wire curette; a large perforation in the posterior inferior quadrant existed together with a dislocated malleus which was also removed under antiseptic treatment; healing of the membrane resulted in four weeks with good result.

Points of Prominence in Treatment of Catarrhal Deafness.—Dr. Sargent F. Snow of Syracuse, New York, read this paper. He believed that in chronic cases a good prognosis was warranted in many more cases than it is now given. The secret of success was often to be found in the relief of a constitutional condition by which the Eustachian tube is kept occluded. The best treatment was the introduction of air under pressure, saturated with gum camphor and iodine, through the Eustachian tube into the middle ear, but such treatment was out of the question until patency of this tube had been secured. The modern tendency to coddling and improper personal hygiene were serious obstacles to the successful treatment of these cases. Wool and linen mesh were the best material for the undergarment. The living rooms should be well ventilated, and cold baths should be taken regularly. In the few cases in which such baths seem impracticable or undesirable, a partial substitute would be found in brisk, dry rubbing of the skin with a harsh towel. The functional activity of the liver must be maintained.

Dr. C. R. Holmes of Cincinnati said that personal experience had showed him that woolen underwear was not the best for the catarrhal subject. Most persons lived in overheated rooms. They could not remove heavy undergarments without trouble or possible danger, while it was very easy to regulate the protection of the body by using light underwear and varying the weight of the outer clothing. He had many times taken persons, both old and young, out of flannel underwear in mid-winter without any serious inconvenience. During the past year he had adopted the plan of printing rules and detailed instructions for regulating the living of these patients. If the patient would not in this way help the physician the local treatment would avail very little.

Dr. C. Dunbar Roy of Atlanta, Ga., thought that no fixed rules could be laid down which would be applicable to individual cases. He believed that woolen underwear should not be worn in the winter; the same weight of underclothing should be worn both summer and winter, the changes being made in the outer clothing. The nose was often operated upon when it could not relieve the condition of the ear. Because one nostril was stenosed was no reason for believing that the deafness would be relieved after the removal of the nasal obstruction. He preferred the use of a solution of menthol and iodine in albolene to the use of vapor in the Eustachian tube. He always made use of a solid silver catheter bent each time to adapt it to the nasopharynx of tne individual case. The condition of the drum membrane as to its pliability and the existence of adhesions should be ascertained before making a prognosis. In lithemic subjects, and in those nervous persons in whom there was a determination of blood to the head on slight excitement, special treatment was required.

Dr. S. MacCuen Smith of Philadelphia thought it was a mistake to put on heavy woolen underwear in winter, even in places as far north as Philadelphia. The general hygienic treatment outlined by the author was very useful. It had been his habit to make use of a hot shower or douche. There should be placed over the bath tub a frame made of gaspipe, and extending around the entire periphery of the bath tub at the height of six or eight feet. In this way a solid stream of hot water passes the full length of the spinal column. Hot water and cold water are used in quick alternation. By this means the person becomes less susceptible to changes in temperature. Physicians were generally inclined to overlook the value of respiration through the skin. He had not the slighest doubt that auto-intoxication arising from fecal accumulation was often a complication in these cases, and hence, he believed in flushing the colon every day for a few days, and then once a week. From two to four quarts should be used for each flushing.

Dr. George L. Richards said that he admired Dr. Snow's enthusiasm and wished that some of his cases with chronic catarrhal deafness were so situated that they could be placed in Dr. Snow's hands. Chronic catarrhal otitis media could exist with the nose and pharynx in perfectly normal condition. One great difficulty was that these patients did not seek relief until quite late. Professor Minot had recently announced that he had discovered glands in the Eustachian tubes, a point which might explain some of the intricacies of this subject.

Dr. E. B. Dench of New York agreed with Dr. Holmes as to the advisability of changing the outer clothing rather than the weight of the underwear. It had always seemed to him that silk was the worst fabric for underwear because it quickly became saturated with moisture, and the wearer was therefore exceedingly liable to be chilled upon the slighest exposure to cold. The linen mesh underwear was found very comfortable and useful by many catarrhal subjects. He believed that these cases of chronic catarrhal deafness could be very materially benefited. These patients should be told at the outset that cure was probably out of the question, and that improvement could only be effected by a long course of treatment. Discouraging as were these cases, his experience had been that in persons who would intelligently co-operate with the physician, the results were encouraging, and even in the worst cases the deafness would increase exceedingly slowly.

Dr. William L. Ballinger of Chicago said that he had been almost carried away with the eloquence and logic of the reader of the paper, and while the treatment must, for the most part, be that outlined in the paper, he could not entirely share Dr. Snow's enthusiasm or indorse his favorable prognosis. The reasons for failure were obvious from a study of the pathology. The disease was one in which the mucosa had become hypertrophied, and adhesive bands extended to the drum membrane or the ossicles. Moreover, the pathological conditions in the Eustachian tube complicated the case. This tube contains lymphoid tissue, which by hypertrophy, often obstructs the Eustachian tube. Under such conditions hygienic treatment could not be expected to effect a cure.

Dr. John O. McReynolds of Dallas, Texas, indorsed what had been said by the previous speakers regarding underclothing, and heartily recommended the use of linen. The linen absorbs the moisture very much more rapidly than the other fabrics. The linen mesh had served him very well. It was exceedingly difficult in the South to induce ladies to take sufficient exercise because of the hot climate. About the only exercise they would indulge in was swimming.

Dr. Snow said he agreed fully with those who had spoken regarding the use of thinner underwear in winter than was commonly worn. He had been wearing linen mesh for three years, but in his cold climate he found a light woolen garment necessary for two or three of the winter months. With regard to the use of vapors, he wished to say that by injecting these interruptedly the mobility of the parts seemed to be increased by the manipulation. The auscultation tube should always be used in giving the treatments. Autointoxication appeared to have an important connection with many, but not all, of these cases. The sclerosed cases certainly appeared hopeless, but there were a great many more which could be benefited by appropriate treatment. Even in the more intractable cases he was becoming more hopeful as a result of giving daily treatments instead of at longer intervals as formerly.

The Effect of Climate on Laryngeal Tuberculosis with Special Reference to High Altitudes.—Dr. Robert M. Levy of Denver, Colo., read this paper. He said that comparatively few writers dwelt upon the climatic treatment of laryngeal tuberculosis. Those who had studied the subject superficially were almost unanimous in condemning high altitudes. Without preconceived notions he had conscientiously studied complete records of 205 cases, and now desired to present a preliminary communication on this topic. High altitudes alone were of comparatively little importance, pure air being the most essential element in the treatment of laryngeal as well as of pulmonary tuberculosis. Such air was found in sparsely settled high altitudes, and on the sea. The pathological picture of laryngeal tuberculosis was one of complete relaxation and anemia, not of inflammation. He had already called attention to the injurious effect of high altitude on acute tuberculosis, particularly of the pharynx. It was well known that 30 per cent. of all cases of pulmonary tuberculosis show sooner or later laryngeal involvement. In the cases developing both lung and throat lesion in Colorado, the throat lesion manifested itself 48 weeks later than in those originating elsewhere. Again, in cases developing the lung lesion elsewhere and the throat lesion in Colorado, the throat lesion occurred on an average 62.3 weeks later than in other regions.

Dr. Levy exhibited in connection with his paper an antitubercle screen and laryngoscopic chair.

Dr. Arthur G. Root of Albany said that he believed tuberculosis was the greatest social problem confronting the human race to-day, and it required a united effort on the part of the profession to solve this vital question. He knew of no locality within the United States to which every case of tuberculosis should be referred, though he knew of a number of places in this country to which certain cases should be referred. Intelligent treatment of tuberculosis would be productive of better results than could be possibly attained by any climate alone. It was generally admitted that laryngeal tuberculosis might be primary in a few instances. A case of tuberculosis showing fairly advanced pulmonary lesions, and giving a history of repeated hemoptyses, should not be referred to a high altitude until this condition had improved. The dryness and purity of the air constituted the essential elements. It was safer for the person to gradually reach a high altitude so as to avoid excessive strain. Such climatic treatment combined with the other recognized methods would probably give the best results.

Dr. C. Dunbar Roy said he did not believe that tuberculosis was ever primary in the larynx. He knew of no treatment equal to a suitable climate. Altitude was not all. Dry air was the most important desideratum. Atlanta was situated at an elevation of 1,500 feet, but in that moist climate he had seen cases of tuberculosis get steadily worse, and only improve when sent out to the dry air of Arizona. By one deep, full inhalation of a strong solution of menthol in albolene it was often possible to detect pulmonary tuberculosis in its incipiency. A cooling sensation would be experienced in the lung not involved.

Dr. H. W. Loeb of St. Louis said that since hearing this paper he had changed the view which he had previously held, *i. e.,* that it was better for cases of laryngeal tuberculosis to die at home than in Colorado. He had known cases of tuberculosis which had received every kind of treatment at home without improvement, improve rapidly after going to Arizona when receiving no treatment.

Dr. John O. McReynolds said that about two years ago he had resolved not to treat any more cases of laryngeal tuberculosis because, no matter how faithfully he treated them at home, he found they did better in a more suitable climate without any treatment whatever. He had succeeded in getting the best results in an altitude of about 3,000 feet on the plains of western Texas. San Antonio had an excellent reputation as a health resort for tuberculous patients, but recent statistics showed that so many persons had flocked there that the natives were contracting this disease. Experience showed that these patients did absolutely better when away from many other tuberculous patients and with only such treatment as they could carry out themselves.

Dr. G. L. Richards said that he met with many persons afflicted with laryngeal tuberculosis who could not leave home and must be treated to the best of our ability. He had already reported 10 cases which were helped and several apparently cured by simple local treatment such as the use of lactic acid and paramonochlorophenol.

Dr. Max A. Goldstein of St. Louis said that he had sent many patients with incipient pulmonary and laryngeal tuberculosis to the Western Divide, and they had returned home with decided improvement in the laryngeal condition. He had treated three cases of laryngeal tuberculosis in St. Louis, occurring in residents of Denver, and despite the treatment they had become worse. They all improved after having been back in Denver for about six months.

Dr. Sargent F. Snow said that altitude seemed to act well in a few cases because of the stimulation of the circulation and improvement in the general health. Like Dr. McReynolds he did not give his cases of laryngeal tuberculosis local treatment, but sent them to a moderate elevation, about 2,000 feet, and if they did not do well there they were sent to a higher altitude. Many of his cases had done well in the Catskill and Adirondack Mountains.

Dr. Levy, in closing, said that, of course, no one climate was suitable for all cases. As a rule, the cases developing the disease in Colorado were obliged to seek other climates for even temporary relief. The stage of the disease and the patient's financial condition must always be taken into account before sending them to some special region for climatic treatment.

Constitutional Manifestations Due to Infectious Processes in the Adenoid Structures of Children.—Dr. D. Braden Kyle of Philadelphia presented this paper. He said that this gland structure was known to be particularly susceptible to inflammation, and when this occurred there arose a high fever and other constitutional manifestations in children. With the slightest infection of this gland the constitutional symptoms were entirely out of proportion to the local changes. After the removal of the adenoid structure there was very little constitutional disturbance, even though slight local infection should occur. Children having repeated attacks of fever for which no very distinct cause could be found, should be examined as it would usually be found that adenoid hypertrophy was present. After recovery from an attack the adenoid structure should be removed by curetting, as this prevents the frequent recurrence of these febrile attacks and often makes the child less susceptible to the acute infectious diseases.

Dr. C. R. Holmes said that he had frequently met with these cases, and had found that they often suffered also from tubal catarrh. Sometimes the quantity of adenoid tissue had been so small that operation had not seemed necessary, yet on the removal of this small mass of tissue the tubal disorder had also disappeared.

Dr. Robert M. Levy said that with the exception of West he did not know of any one who had directed attention to this important matter. A case was mentioned as occurring in his own experience in which with only a moderate adenoid hypertrophy a fever of considerable duration was quickly controlled by washing out the nose, and a cure effected by removal of this adenoid tissue.

Dr. J. A. Stucky of Lexington, Ky., said that until a year or two ago he had been inclined to look upon the cases described in the paper as being dependent upon irritation of the alimentary canal rather than of trouble in the nasopharynx. Very frequently the patient was relieved by a mercurial purge, but he had met more recently with a number of recurrent cases, and the removal of a small mass of adenoid hypertrophy had effectually prevented further attack.

Dr. L. A. Coffin of New York referred to a case in which a child was thought to be suffering from malaria, but the usual antimalarial remedies failing to give relief, the nasopharynx was examined and pus discovered, apparently coming from the ethmoidal region. Adenoids had been previously removed from this child's nasopharynx. He was inclined to think that retention of pus at various points explained these cases.

Dr. C. Dunbar Roy insisted upon the use of the postnasal mirror rather than the finger in the examination of the nasopharynx. Reference was made to a case in which the nasopharynx was occluded by a whitish membrane, causing great obstruction to breathing, but associated with no rise of temperature. Two cultures for the Klebs-Löffler bacillus were negative.

Dr. H. W. Loeb of St. Louis said that he had opposed the removal of adenoids unless they occluded the tube or interfered with nasal respiration. He had had under observation a child with attacks of otitis media recurring at intervals of a few weeks. There was a very small mass of adenoids, but since its removal there had been no more of these attacks.

Dr. C. E. Munger of Waterbury, Conn., said that he had been called to see a case of diphtheria because of the great difficulty in breathing. He had removed at once a very large mass of necrosed adenoids, with the result that there had been a quick amelioration of the symptoms. This was the only time that he had operated during an attack of diphtheria.

Dr. Kyle, in closing, said that he often made an examination for adenoids with a nasal speculum and a small electric lamp in the mouth. Only about once in 150 times could a satisfactory examination be made in a child by means of the rhinoscopic mirror. He often made use of the finger, and could determine adenoid hypertrophy with it when this was impossible by either of the other methods.

Report of a Case of Rapid Necrosis of the Temporal Bone Following Scarlet Fever.—Dr. Francis R. Packard of Philadelphia was the author of this paper. The subject of the report was a child who had been in good health and had no disease of the ear prior to an attack of diphtheria followed by scarlet fever. Examination then showed a large sequestrum of bone plugging the external auditory canal. Streptococci and staphylococci were found in both ears, though in only one was there any extensive necrosis.

Fibro-Papilloma of the Larynx with Unusual Movements.—Dr. H. W. Loeb of St. Louis reported this case. A woman of thirty-eight years was the subject of the report. The history dated back to an attack of suffocation and dyspnea coming on during the night. Her voice was jerky, but there was nothing about the breathing to indicate laryngeal obstruction. Examination of the larynx showed apparently a tumor on the posterior wall of the infra-glottic portion of the larynx and trachea. As expiration began the tumor appeared, swung around and passed into the supra-glottic portion; then a second tumor appeared and surmounted the first tumor, almost completely hiding the glottis from view. During phonation, as a rule, only the first tumor succeeded in getting above the glottis. Three tumors were first removed by the forceps, and a fourth one at a later sitting. It was evident that the tumors had sprung from the inferior surface of the right vocal band, and that their mobility was due to the length of the pedicle.

Dr. George L. Richards said regarding the removal of intra-laryngeal tumors under local anesthesia that if one-quarter of a grain of morphine were given about half an hour before the operation it would greatly aid the operator, as the natural reflexes would be much less marked as a result and the local anesthesia intensified.

Spasmodic Torticollis Following Adenotomy.—Dr. John M. Ingersoll of Cleveland, O., presented this communication. He said that spasmodic torticollis following any operation was very rare. He had only found the record of one case occurring after adenotomy, and that had been reported by Dr. J. F. McKernon. His own case occurred in a well-nourished boy. The adenoid tissue was removed under cocaine anesthesia with a Gottstein curette. Two days later the boy returned with a typical torticollis. Three hours after the operation the boy had begun to complain of pain in the throat, and the face turned to the left. Examination showed no apparent injury to the surrounding structures. The disorder was looked upon as a neurosis, and he was treated by suggestion and massage. The torticollis was easily overcome and did not recur. The speaker was of the opinion that recovery would have taken place, though perhaps more slowly, without any treatment. Two cases of torticollis had been cured by Dr. A. J. Gillete by adenotomy.

Dr. Thomas H. Halsted of Syracuse said that he had met with an exactly similar case in which the torticollis had entirely disappeared after nine days without any treatment.

Dr. William R. Lincoln of Cleveland, O., recalled a case occurring in a young girl, upon which he had operated for adenoids. The next day the muscles of the soft palate were found to be alternately relaxing and contracting, and inquiry elicited the fact that the child had suffered from chorea some time previously.

Influenza as a Causative Factor in Inflammatory Disease of the Respiratory Tract.—Dr. W. B. Shields of St. Louis read this paper. In his experience the sinuses most frequently involved were the frontal and ethmoidal, and the affection was sometimes associated with impairment of memory and lethargy. All cases of frontal sinusitis recover without operative interference unless there is preexisting polypoid hypertrophy or inflammation of the sinuses. The sphenoidal sinus was often affected, but recovery was usually spontaneous. The worst cases were those in which the ethmoidal cells were affected. The laryngitis of influenza was similar to that found in ordinary colds. The most distressing and dangerous cases were those in which influenza attacks the lungs, and this was particularly so in persons showing arteriosclerosis or chronic disease of the lungs. The tendency to tuberculous infection after influenza was well marked.

Dr. J. A. Stucky said that he had met with very few cases of influenza which had affected the larynx or the lower portions of the respiratory tract. He had noticed that violent frontal and occipital headache were out of all proportion to the constitutional disturbance. The nose would show perhaps only a slight swelling of the turbinate, and the temperature of the body was apt to be subnormal in the morning, rising to 100 or 101° F. later in the day. Small hemorrhagic spots were frequently found in the drum membrane of the ear. In three cases he had observed loss of smell and of memory following influenza. The majority of these cases could be relieved without surgical interference unless there had previously existed a polypoid degeneration or some other abnormal condition. Because of the prostrating effect of the disease the patient should be put to bed at once. The salicylates combined with the bromides had given him the best results in the constitutional treatment. He avoided the use of opium and of the coal tar products. To relieve the pain he used dry heat or a very weak saline solution of adrenalin, 1 to 8,000 or 12,000. The mistake was often made of using too strong a solution, thus causing excessive reaction. The pain was due to retention of secretion.

Dr. Shields objected to the use of adrenalin in any disease of the frontal sinuses in which there was acute inflammation. He preferred a weak solution of cocaine or of eucaine.

Various Operative Procedures for the Relief of Chronic Suppurative Otitis Media and their Comparative Value.—Dr. Edward B. Dench of New York read a paper upon this subject. In a consideration of the topic he confined his remarks to those cases of long standing, in which suppuration had persisted in spite of the ordinary measures for relief. In all cases the cause of the otorrhea was diseased bone within the tympanic cavity. In order to effect a permanent cure it was necessary that all diseased foci should be removed, and that any wound resulting from the surgical interference should be made to heal as quickly as possible in order that all regions previously diseased might be quickly covered with normal epithelium. In cases where the caries was confined either to the ossicles or to the ossicles and those parts of the tympanic cavity which were easily accessible through the external auditory meatus, excision of the ossicles and thorough curettement of the tympanic cavity through the external auditory canal constituted the ideal procedure, both on account of its simplicity and its safety. The author showed both from its own statistics and those of other operators that the simple operation of removal of the ossicles and thorough curettement of the tympanum effected a cure in at least one-half of the cases operated upon and he advised this procedure, provided the cases submitted to the operation were carefully selected. In every case in which this operation was undertaken the author emphasized the necessity of a thorough and complete search for the incus. The reason for this was that this ossicle was most frequently the initial seat of intratympanic caries, and even though only a small fragment of the ossicle remained, this would be sufficient to keep up the suppuration. It should be remembered that the incus usually lies close to the margin of the tympanic ring. Occasionally it may be displaced into the lower part of the tympanic cavity by the operator in extracting the malleus. The speaker drew attention to the fact that while many operators considered the operation as finished with the removal of the ossicles, it was important to bear in mind that the operation was not complete until all diseased bone had been removed from the tympanum by the thorough use of the curette. Hemorrhage could usually be controlled by packing with sterile gauze strips or with gauze strips saturated in a sterile solution either of adrenalin chloride or of suprarenal extract. When there was extensive caries of the middle ear it was necessary to thoroughly expose the tympanum and the adjacent cells by the free removal of the osseous walls. When the mastoid cells were also involved, the mastoid antrum was entered as the initial step of the procedure, and the author advised this as the first step in practically every case in which the radical operation was indicated. His custom was to make the incision through the soft parts, five-sixteenths to one-half inch behind the line of the posterior auricular fold. The anterior flap was then dissected forward and the posterior margin of the bony meatus exposed. The author found that if he dissected out the fibrocartilaginous meatus from the bony canal this membranous tube would rupture posteriorly close to the level of the drum membrane. He favored entering the mastoid antrum through the cortex rather than following the course advised by Stacke of entering the mastoid antrum through the external auditory canal, as the initial procedure. The operator was next advised to follow the upper wall of the external meatus inward and remove the floor of the tympanic vault, thus throwing the tympanic vault and the atrium into one large cavity. The next step was to break down the bridge between the opening already made in the mastoid and the external auditory meatus. This procedure involved the removal of the posterior wall of the external auditory meatus. This should be done freely, the bridge being taken away completely down to the floor of the external auditory canal, as far inward as two-thirds the length of the canal; that is, the outer two-thirds of the posterior wall of the meatus should be removed completely and made continuous with the mastoid opening. It was considered unsafe to remove the posterior wall of the canal to this extent throughout its entire depth for fear of injuring either the fascial nerve or the horizontal semicircular canal. If the bone was removed according to the plan already described, the horizontal semicircular canal and the aquæductus Falloppii, lying just below it, could be easily seen by the operator and all diseased bone remaining could be removed without injury to these structures. Where the mastoid cells were pneumatic, these were to be thoroughly explored until firm bone was reached. Hemorrhage sometimes constituted an obstacle to the operation, but could always be controlled by firmly packing the cavity with gauze. In some instances, the operation was prolonged on account of persistent oozing from the bony structures, but in no case was hemorrhage so severe as to prevent the completion of the operation. The middle ear and mastoid having been thoroughly cleared out, it was next necessary to provide an epithelial lining for the extensive bony cavity thus formed. Such a cutaneous lining was obtained by forming flaps from the posterior wall of the fibrocartilaginous meatus and from the concha. The exact form of flap to be employed must vary with each individual case. The writer had found that in most cases it was wise not to limit these flaps to the fibrocartilaginous meatus, but to take some tissue from the concha as well in order to secure a larger amount of cutaneous covering for the exposed bone. He had also found that it was of material advantage, in most cases, to dissect out the fibrocartilaginous tissue from these flaps, so that the integument might be applied more perfectly to the bony walls of the cavity. There was danger in this operation of injuring the facial nerve, the horizontal semicircular canal, the labyrinth and the lateral sinus. Any of these accidents could usually be avoided by care on the part of the operator. Comparing the results of these two operations upon the function of the organ, the writer stated that the surgeon could generally promise that the hearing would probably not be worse after the simpler operation of removal of the ossicles, but would, in the majority of cases, be improved. The effect of the radical operation upon the hearing was somewhat uncertain. In many cases it remained the same as before the operation; in a few it was made worse and in others the hearing was improved. It was, therefore, wise prior to the performance of the radical operation, to caution the patient that the function of audition might be greatly impaired as the result of the operative procedure.

Chronic Suppurative Otitis Media. When Should Radical Surgery be Employed in its Treatment, and of What Should This Consist?—Dr. George L. Richards of Fall River, Mass., presented this paper. Out of 64 cases of brain and cerebellar abscess he had found 82 per cent. to be the result of long standing chronic purulent otitis media. Out of 9,000 autopsies at Guy's Hospital the cause of death in two-thirds of 1 per cent. was chronic suppurative otitis media. This small proportion, however, was no argument for shirking the duty of explaining to the patient that he was carrying around in his head what was equivalent to a charge of dynamite. According to his experience hearing was generally improved by operation. Ossiculectomy was advised by many aurists as the first operation to be done. Distressing nausea and vertigo often followed this operation, and facial nerve paralysis, lasting several months, was sometimes observed. He therefore preferred in most instances to do the radical operation. It was essential to have good illumination for this operation, preferably that obtained from the forehead electric light. The tympanic opening of Eustachian tube should not be overlooked in the process of curetting the cavity. Most of his patients had left the hospital in less than two weeks after the operation, and in another week had returned to work. The after-treatment, though simple, might last from six weeks to six months.

Dr. S. MacCuen Smith of Philadelphia advocated the early recognition and treatment of acute suppurative disease of the ear in order to prevent many of these cases from becoming chronic. A very large percentage of these cases could be cured if proper treatment were early instituted. Early incision of the membrana tympani could do no harm, and would often arrest the process before suppuration had begun. His experience had been that in a rather large percentage of cases in which the tympanic operation had been done the radical operation would be subsequently demanded. He preferred the Schwarze-Stacke operation because of the diminished danger to important contiguous structures. The lateral sinus was certainly more forward in these chronic cases, as pointed out in Dr. Richards' paper. The effect on the hearing was of slight and secondary importance.

Dr. C. R. Holmes reported another case of facial paralysis coming on after ossiculectomy and curetting of the upper and posterior wall. Complete paralyis developed on the seventh day and disappeared in about two weeks. He had never been in favor of the Stacke operation because of the liability of wounding important structures. A study of a great many temporal bones and taking plenty of time in operating would minimize these dangers. He had frequently exposed the dura and the lateral sinus and did not think there was any danger in so doing. He preferred to open up and see what he was doing so as to effect a permanent cure. He believed that there should be 100 per cent. of cures after one or more radical operations, barring intracranial complications. He was satisfied that Dr. Dench's method of using the incus hook was better than that taught him by Schwarze, and he had proved by actual experiment that by the latter method there was danger of dislocating the incus into the antrum. He preferred to do the plain Schwarze-Stacke operation, and the actual time of operation with him varied from 20 minutes to an hour and a half. If one cut freely into the cartilage one was likely to have perichondritis result with consequent shrinkage of the ear. In the majority of cases he left the wound open at first, allowing it to close in the second or third week. In young persons it could sometimes be closed at once. In the vast majority of cases the hearing had been better or not injured. Chronic suppuration even of a low grade was unquestionably deleterious to the general health, as was shown by a slight rise of temperature and a sallow complexion. The mouth of the tube should be most thoroughly, almost severely, curetted. According to his experience the after-treatment was very important and it seemed impossible to train the average hospital interne in a short time to dress these wounds properly.

Dr. James F. McCaw of Watertown, N. Y., asked what was the experience of the members with ossiculectomy as to the formation of a new tympanic membrane, and what had been the effect on audition. This question was prompted by personal experience. Subsequent to this new membrane formation great improvement in hearing had been afforded by the use of the Valsalva method. Immediately after the operation the hearing had been enormously augmented. The formation of the tympanic membrane had required about two years.

Dr. M. D. Lederman of New York said that he thought all would agree that the radical operation would be the future treatment of chronic suppurative otitis media, but the dangers must be taken into consideration. At the last meeting of the society he had reported a case in which there had been a malposition of the lateral sinus. In using the chisel heroically one was apt to make too rapid progress. Where there was mastoid involvement there was danger of sinus thrombosis from the opening of a sinus previously healthy. He knew of three such cases; hence the necessity for the cautious removal of the diseased tissue around the sinus. He recalled a case in which reformation of the drum took place in four weeks, the case being one of long standing suppuration. At that time the patient complained of pain and, fearing retention of secretion, the membrane was removed and also some granulation tissue found in the attic. This caused severe vertigo and vomiting, which necessitated the patient's remaining in his office for two hours. One of his cases had been compelled to stay in bed for two weeks because of severe vertigo and projectile vomiting. He would again insist upon the great importance of thoroughly curetting the Eustachian tube.

Dr. Robert M. Levy asked what was the average length of time the discharge lasted after the two flap methods described; also in those instances in which the posterior wound was allowed to remain open for three or four weeks, what was the after-treatment of this portion.

Dr. Dench said that the drum membrane sometimes reformed, and it seemed to make the hearing worse. He did not think the special flap method required had any effect on the time the discharge lasted; he ordinarily expected this time to be from six weeks to two months.

A Nasopharyngeal Tumor.—Dr. G. Hudson Makuen of Philadelphia reported this case and exhibited the patient. He was a youth of eighteen years having a tumor attached to the posterior third of the left nostril and to the vault of the pharynx. Both nostrils were practically occluded. The tumor filled the vault of the pharynx. A small section of the growth had been examined by Dr. David Riesman, who reported it to be an edematous fibromatous growth characterized by stratified epithelium. On July 7, 1901, under ether, a portion of the growth had been removed with a snare and No. 10 wire. The tumor was very vascular and the operation was followed by considerable hemorrhage. This specimen was examined by Dr. W. M. L. Coplin and thought to be granulomatous. Nothing had been done since that time and the patient had become apathetic in regard to it. There had not been much change in the case except the appearance of an infiltration of the muscles of the cheek. Antisyphilitic remedies had been employed without effect.

Dr. H. W. Loeb said he did not place overmuch reliance on the diagnosis by the microscope of this class of cases. He would suggest that in this particular case electrolysis be used. He had seen marked improvement in three such cases, not only in a reduction of the vascularity but in the size of the growth, and others had reported good results. One of his cases had been kept under observation about 10 years. He did not like the infiltration in the cheek, because in one of his cases that proved to be malignant it had acted in a similar manner; the mass proved to be an extension of the growth around the posterior surface of the superior maxilla. In one case, thought to be a fibrosarcoma with elastic fibers, the tumor grew from the vicinity of the Eustachian tube. The course of the case did not point to its being a sarcoma.

Dr. Ewing W. Day of Pittsburg said that he had unfortunately met with a number of such cases. One of them was a very extensive fibroma. The patient would not consent to removal of the superior maxilla, so he had made the incision as for that operation except not going under the eye. He had then cut into the maxillary antrum and cut away the inner wall of the antrum, leaving the nostril attached to the outer border of the bone. When the antrum and the nasal cavity were thus thrown into one cavity he was able to reach the root of the growth, and remove it without producing much hemorrhage. He had been surprised at the wide field of operation thus obtained. This operation had been done three years ago, and there had been no recurrence. If he had to do the operation again he would leave only a ridge to anchor the nose to, and so prevent the ballooning that now takes place in this patient when blowing his nose.

Dr. J. A. Stucky said he believed that if this infiltration of the nose were left untreated it would require an external operation. From his own experience he felt that it was not possible to make a snare that would remove the tumor from Dr. Makuen's patient. Mention was made of an exceeedingly trying case of the kind that had fallen to his own lot.

Dr. J. O. McReynolds, Dallas, Texas, advised using a cold wire snare and holding it in position while an assistant tightened the snare as much as possible. Having made a pedicle in this way, the galvanocautery loop should be thrown around the growth. This method would allow some of these growths to be removed that would ordinarily break snare after snare. A case was cited in which the superficial layers of the growth indicated only fibroma, but examination of the deeper ones showed sarcomatous elements.

Dr. M. D. Lederman of New York said that he had some experience with Dr. Dawbarn's method of operating in order to starve out these growths in the rhinopharynx, and he would suggest that Dr. Makuen consider this method in connection with his case. A case was referred to in which the patient had been seen five years after the Dawbarn operation and there had been at that time no return of the growth.

Dr. Edward B. Dench remarked that Dawbarn's method embraced ligation of the external carotids and their branches, with complete excision of the ligated vessels.

Dr. G. H. Makuen said that it had been impossible to get the cold wire snare around the tumor because it extended so far down on the posterior pharyngeal wall. The patient and his family would probably not consent to any other radical operation.

Tuberculosis of the Middle Ear with Report of Cases.—Dr. Max A. Goldstein of St. Louis was the author of this paper. He expressed the conviction that primary tubercular infection of the ear was not only possible but more frequent than generally believed. In substantiation of this a case was reported in which careful physical examination showed no tuberculosis elsewhere, yet subsequently an acute miliary tuberculosis developed in the lungs and was proved to exist at autopsy. It was thought to be secondary to the tuberculous process in the ear. Altogether five cases were reported, which were believed to be examples of primary tuberculosis of the middle ear. There was no family history of tuberculosis in these cases.

Dr. Robert M. Levy of Denver said that if we more often resorted to such microscopical examinations the literature of this class of cases would probably be extended. While not questioning the diagnosis at all he would suggest that in some cases in which tubercle bacilli were found there was the possibility of the extraneous presence of the tubercle bacilli.

Dr. E. B. Dench also expressed the opinion that this method of systematic examination, if extended, would probably show evidence of tuberculosis in very many more cases. This had been the experience in joint tuberculosis. The paper was certainly most instructive and suggestive.

Dr. J. O. McReynolds reported the case of a child of six years who had been brought to him some years ago with chronic disease of the middle ear. He did a radical operation and completely cured the local condition. Two years later the patient developed disease of the spine and hip joint, and died of tubercular meningitis. He looked upon this case as an example of primary tuberculosis of the middle ear. He would like to know if there was any scientific ground for the popular notion that the healing of a tubercular process in one part of the body would result in its breaking out in another part.

Dr. H. W. Loeb said that tuberculin should be used in these cases with a view to determining the presence of tuberculosis elsewhere. He did not think a reaction would be obtained from the process in the ear.

Dr. G. L. Richards asked for the experience of Dr. Levy with regard to the tuberculin test.

Dr. Levy said that in very incipient cases of tuberculosis the tuberbulin had often cleared up the diagnosis, but he had never used it in connection with purely local tuberculosis.

Dr. William L. Ballenger of Chicago said that he had had no experience with the tuberculin test in local processes, but he had observed its action in incipient tuberculosis. He mentioned two cases in which experts in physical diagnosis had found no pulmonary tuberculosis, and yet the appearance of the larynx suggested tuberculosis, and the application of the tuberculin test produced the characteristic reaction. He saw no reason why tuberculosis should not be primary in the larynx and in the middle ear.

Dr. John A. Thompson of Cincinnati said that it was claimed that tuberculosis is always first a disease of the lymphatic glands, either of Waldeyer's ring or of the intestine, and that tuberculosis never occurs in the lungs until the lymphatics at the root of the lungs are first involved. This, he thought, would enable one to make a diagnosis of tuberculosis before there were any physical signs in the lungs. In cases of obstinate catarrhal laryngitis with an evening rise of temperature, even without physical signs, he favored making the diagnosis of incipient tuberculosis and sending the patient to a proper climate. He had known several such cases to subsequently develop pulmonary tuberculosis.

Dr. Goldstein said that the remark made by Dr. Levy simply corroborated his own view with regard to the possibility of local tubercular infection.

(To be continued.)

BYWAYS OF MEDICAL LITERATURE.—VII.

Animals' Rights.

The following story which is told in a recently issued volume "Varieties of Religious Experience, A Study in Human Nature," by William James, Professor of Philosophy at Harvard, will be of interest to medical men, as showing how far the tendency to regard animals' rights too precisely may be carried by those who once begin to yield to undue sentimentality in the matter. Towianski, an eminent Polish mystic and patriot, was discovered one day by a friend permitting a large dog to jump up on him and exhibit various manifestations of its pleasure at meeting him. As the rain was pouring down and Towianski was being delayed in the street and as the dog was all muddy, and was making his but newly made acquaintance like unto himself, the friend protested. Towianski immediately reassured him, however, and continued to welcome the manifestations of friendship. "This dog whom I now meet for the first time," he said, "shows good fellow feeling and great joy in my recognition and acceptance of his greeting. Were I to drive him off I should wound his feelings and by so doing inflict upon him a moral wrong. This would be an offense not only to him, but to all the spirits of the other world on a level with him. The damage he does my coat is as nothing compared to the wrong I would inflict on him, if I displayed indifference to the manifestations of his friendship."

The example of the good mystic is commended to all our antivivisectionist friends as a model on which their own conduct towards animals can be regulated. When rights and duties become thus exaggerated by sentiment there is no knowing where the end is to be.

As Others See Us.

It is said to be a precious gift to be able to see ourselves as others see us. In default of this rare privilege probably there is no better way to get at some of our faults than to see our pictures as the dramatist paints us. Usually the French dramatists have been ready enough to satirize the physician, and since Molière's time it has been a tradition of the French theater that the medical man makes reasonably good dramatic material at which audiences are ever ready to laugh. The Frenchman, who at the present time is attracting most attention by his satiric comedies, M. Eugene Brieux, certainly seems to find physicians worthy of his satire, for in a number of his successful comedies physicians are introduced and nearly always in a humorous vein that may be expected to prove laugh-provoking even for physicians themselves. M. Brieux has obtained great vogue in very recent years, has had the privilege of being acted in every large city in Europe almost, and at least one of his plays has been put on the stage here in New York. It seems worth while then to give an extract from his play "Evasion," which we feel sure most medical men can enjoy quite as cordially and with perhaps better understanding than any of the audiences that have listened to M. Brieux's productions. The passage we quote is in the opening scene of the comedy and is calculated to show very well M. Brieux's satiric methods. We are indebted for the excerpt to the July number of the Atlantic Monthly in which there is an excellent critical article on Brieux's work.

Dr. La Belleuse asks the advice of his famous chief, Dr. Bertry as to the cases which are worrying him.

La Belleuse—There is one case that I can't succeed in relieving.

The Doctor—That will happen.

La Bell.—Of course, but he wants very much to go to Lourdes.

The Doc.—Let him go.

La Bell. (dismayed)—You don't mean that? What if he should be cured?

The Doc.—You can always find a scientific explanation.

La Bell.—Suggestion?

The Doc.—Certainly; it answers for everything. Anything else?

La Bell.—There is Probard, that patient of whom I spoke to you. He can't last more than a week.

The Doc.—Call a colleague in consultation. That will divide the responsibility.

La Bell.—But Probard is almost a celebrity.

The Doc.—Call in two.

La Bell.—Yes. At the hospital, Number Four in the St. Theresa room is still in the same condition.

The Doc.—Have you tried everything?

La Bell.—Everything.

The Doc.—Even doing nothing?

La Bell.—Even doing nothing. Not one of them can tell what is the matter with her.

The Doc. (after a sigh)—We shan't know till the autopsy. Let us wait.

La Bell.—Stopping all treatment?

The Doc.—No. One must never seem to lose interest in a case. That would be a mistake. A regrettable mistake. Do, no matter what, but do something. That is all?

La Bell (consulting his memoranda)—I don't see anything more.

Such satire is not calculated to do harm but rather to bring out the fact that the practice of medicine is, after all, the pursuit of an art, not a science, and that consequently there must be elements of shortcoming some of them personal, some due to inherent difficulties and all requiring patience and tact until the light of science shall be clearer.

INCOMES OF GREAT PHYSICIANS.

The incomes made by famous physicians are always a matter of the greatest interest, not only to the profession itself but to the public at large. Notwithstanding the fact that larger fees are asked and given nowadays than formerly it is probable that very few physicians or surgeons are able to earn larger incomes than some of the distinguished men of immediately preceding generations. One of the English popular weekly papers gave recently a list of English physicians of note, most of them more than quarter of a century dead, whose incomes were considerably above $50,000 a year. It is surprising to find that many of them made very little money during the early part of their careers and yet obtained the material rewards of medicine in profusion before they had been 20 years in practice. It was our own Osler who said that during the first ten years a practitioner in a large city could scarcely expect to obtain more than bread and water with perhaps bread and butter during the second ten years, and the cakes and ale later. The number of physicians practising at the present time makes the certainty of small income at the beginning greater than ever and diminishes very materially the chances of a very large income later on in life. The prospective rewards of medicine, as they were, however, may very well be gleaned from the list, so we give it:

An income of £20,000 ($100,000) a year is by no means uncommon for a great surgeon. Sir Astley Cooper, who in his first year earned five guineas and in his second £26, made in one single year, when he had got to the height of his fame, £21,000, and a general average for several years of £15,000. He once received a fee of 1,000 guineas—a little more than $5,000.

This fee, however, was left far behind by a record sum of £20,000 paid to Dr. Dimsdale, a Hertfordshire physician, for inoculating the Empress Catherine of Russia and her son. Besides this fee, a life pension of £500 a year was granted to the lucky man. Sir Morell Mackenzie received £12,000 for his attendance on the Emperor Frederick. Mackenzie was famous alike for his high fees and for his generosity in treating people for nothing. Those who could pay had to pay, and pay well, but artists and literary people, and any whose purses were small, he charged nothing.

There is no more striking contrast than between the early and later earnings of a great doctor. Sir James Paget, whose life, recently published, attracted so much attention, was an instance of this. During the first few years he scarce earned enough to buy bread. For seven years his largest income was £23 13s. Until he had been a surgeon for sixteen years it never exceeded £100. After 1851 his income rose steadily till it reached £10,000 a year. Then he gave up operating, and it fell at once to £7,000, and then slowly decreased.

Sir James Simpson earned nothing at first. Yet when he was thirty the hotels were filled with his patients, and his practice was worth thousands a year to them.

Sir Erasmus Wilson, the famous skin specialist, was so well off that he could spend £10,000 on a hobby like bringing over Cleopatra's Needle to England, and £30,000 on a charity like the new wing and chapel for the Sea Bathing Infirmary at Margate. Sir Erasmus Wilson died in 1884, leaving £180,000.

Sir Andrew Clark is said to have seen 10,000 patients annually, and in his time had practically every famous man under him. He always took what was offered as a fee, sometimes £500, sometimes two guineas. He is said to have once received £5,000 for going to a patient at Cannes from London. He was Mr. Gladstone's physician.

Great doctors have a recognized fee of a guinea ($5.25) a mile for traveling to see patients outside their usual radius. One of the present King's late physicians, when the King was Prince of Wales, received for four weeks' attendance at Sandringham, when the Prince had typhoid fever, a baronetcy and £10,000.

THE PHYSICIAN'S GARDEN.

A renewed interest is being taken in gardens. We have had the Commuter's Garden and various forms of country gardens besides Elizabeth and her German garden, so that it would seem as though we might with propriety speak of the physician's garden. Many a country physician must have the opportunity to have a certain number of plants for home adornment. An article in the July number of Lippincott's on "A Garden of Native Plants" shows that some ornamental varieties of domestic plants that grow excellently in most northern localities may very well have a significance beyond their decorative effect when planted in the physician's garden. The viburnum opulus, for instance, is well known in medicine and the bush from which it comes, better known in country neighborhoods as high cranberry bush, is a shrub of very easy culture. It is a near relative of the viburnum, more commonly known as snowball or guelder rose. The native variety is quite as attractive as regards manner of growth and foliage. In the fall it is far more attractive, for the leaves change from green to pale yellow and red. The most attractive feature of this plant is its great clusters of bright crimson berries which generally remain on the branches all winter. There is no more suitable shrub for the winter decoration of the lawn. The berries are quite as brilliantly effective as any flowers could be and especially so when the chief color in the landscape is white, the contrast with which throws them into vivid relief.

Golden rod is another plant occasionally used in medicine which makes an excellent garden plant. To bring out its beauty fully, it should be associated with the aster which is almost everywhere found growing alongside it in nature. The pale rosy violet and lavender of the aster heighten the yellow of the golden rod and make it truly golden in the richness of its depth and tone. If the plants are simply given a place in the garden they will take care of themselves. Hamamelis, or witch hazel, is a native shrub which has many and peculiar attractions that make it suitable for gardens. It does not require much care. The sweet pepper bush is worthy of a place in any collection. Certain of the weeds that are native to this country and are occasionally used for medicinal purposes, as the asclepias, or milk weed, whose scientific name comes from the great heathen patron of medicine may prove a very ornate plant if used for the borders of gardens. The writer in Lippincott's says that for borders they are far superior to nine-tenths of the plants we import for this purpose. It would seem that the physician might well make his garden in a way an interesting symbol of his profession at the same time that it proves a model for neighbors in the matter of the encouragement of certain native plants. All the shrubs and plants mentioned can be removed safely in spring and it will be found that all native plants take on strength and luxuriance of growth under domestication, such as they never exhibit when growing wild.

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ORIGINAL ARTICLES.

THE HEALING OF ULCERATIVE ENDOCARDITIS.*

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SINCE Bouillaud's time (1837) two types of acute endocarditis have been recognized, the vegetative or benignant, and the ulcerative or malignant; but neither anatomically nor clinically can a sharp line of demarcation be drawn separating the one group from the other. Both are by common consent regarded as infectious in origin, though the part that may be played by toxins is not clearly defined. There are striking differences between the anatomical appearance of these forms; the vegetative with its little innocent-looking, warty fringe paralleling the edges of the valves, the ulcerative with massive excrescences, crater-like excavations, perforated valves, and purulent coating. And the contrast is as striking, clinically, between the extremes of a faint cardiac murmur, little or no disturbance in the cardiac force and rhythm and insignificant constitutional disturbances of the benignant, and the fulminant malignant type, with its chills, irregular fever, prostration, typhoid state, embolic phenomena and rapid death.

But between these extremes are to be found all degrees of anatomical alteration; and clinically the one form shades imperceptibly into the other, so that one must often be content to speak of an acute infectious endocarditis or of an acute endocarditis with mild or severe manifestations as the case may be. If it were possible to recognize the micro-organism that is at fault in a given case, it would be a more scientific classification to speak of a pneumococcic, a streptococcic, a gonococcic endocarditis, etc. Yet, until this is possible, it is wise from the standpoint of prognosis and therapy to recognize two types of the disease in the same manner that we often speak of scarlet fever as extremely light in one case or malignant in another, though believing the disease in the two cases to be primarily of the same nature, but modified by greater virulence or number of organisms, by lessened resisting power on the part of the patient, or by failure to eliminate toxins. So, while it is well to preserve the expressions "ulcerative," or "malignant," in connection with endocarditis, it must be remembered that the terms are used rather loosely in an anatomical sense and also, to a certain extent, in a clinical sense.

Clinically by ulcerative or malignant endocarditis is commonly meant an acute endocarditis accompanied by a fairly uniform complexus of symptoms among which may be mentioned, irregular fever with chills, embolic phenomena, petechiæ, bacteria in the blood, pronounced constitutional disturbances in the shape of symptoms of the typhoid state—delirium, subsultus, sordes—progressive anemia, etc. The usual termination of these cases is death within a few weeks, or in one form after many months; and the anatomical finding is the mycotic, destructive lesion of the valves. The prognosis, therefore, is bad or fatal in the malignant endocarditis. Or, to put the statement in another way, it is often said that, if the patient recovers, the case was one of the benignant or vegetative form; if he dies, it was malignant or ulcerative. This is making our disease fit a definition—always a pernicious practice. Perhaps argument to prove the possibility of occasional healing in this severer form is unnecessary, at least before this audience. Yet the impression regarding the fatality of this variety is so prevalent that if a case diagnosed as ulcerative endocarditis recovers, as a rule there is declared to have been a mistake in diagnosis; and treatment in these cases is considered absolutely futile. It may not be amiss, therefore, briefly to call attention to certain facts that indicate the possibility of recovery.

One has a right to question whether an acute endocarditis, with irregular fever, chills, petechial spots, and bacteria in the blood, is of necessity fatal. We may question on the ground of *a priori* reasoning, of clinical observations, and of postmortem findings. Some severe cases of septicemia, in man as in lower animals, recover. Puerperal sepsis, though virulent, is not necessarily fatal. Pneumonia is often accompanied by bacteriemia, by metapneumonic localization, and yet recovery may follow. While one realizes the added seriousness that is due to the establishment of a focus of microbic multiplication and toxin formation in the very center of the vascular system, from which center-organisms and their products are freely swept out into the circulation and disseminated to the most distant parts of the body; and while one understands fully the gravity of the mechanical interference with the valvular and muscular mechanisms of the heart that often accompanies an acute endocarditis, one must still feel that it is possible, even here, for the body to resist, for the inflammatory process to subside and for local healing and constitutional recovery to ensue.

This view is borne out by clinical observation. There are records in the literature where competent observers have had cases with the typical symptoms of acute endocarditis of the so-called ulcerative type—chills, irregular pyemic fever, petechiæ, visceral embolic phenomena, bacteria in the blood—and recovery has followed with the exception, perhaps, of some mechanical lesion due to the scarring of the valve. These cases are exceptional, to be sure; this complexus of symptoms usually means death; but recovery may occur if these observations are correct. It is easy to pick flaws in many of these histories. But there is a value to the impression made by a given case upon a skilled clinician, and his estimate of a case, when he shows capacity to observe carefully and to weigh evidence critically, should be given much weight, even though the crucial tests may be lacking and though his results are opposed to generally accepted opinion.

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* Read at the Meeting of the Association of American Physicians, Washington, D. C., April 29, 1902.

There is no pretence that this is a complete list of all cases reported as recoveries from malignant endocarditis. More extended search will reveal others. But enough are here given to call attention to the fact that recovery is regarded by many as occasionally occurring.

A. E. Roussel: A woman, following a miscarriage, had a foul uterine discharge, then continued fever with occasional spells of subnormal temperature, chilliness, sweats, pains in various parts of the body, great emaciation. The heart became tumultuous, its area of dulness increased, systolic, apical and basic murmurs appeared; the pulse was often irregular and as high as 148; there was a dull pain and feeling of oppression in the region of the heart. The red corpuscles were reduced to 3,000,000; hemoglobin was 35 per cent; leucocytes 26,000; streptococci were present in the blood; and several subcutaneous abscesses, containing streptococci, formed. After twelve weeks the patient recovered. Examination six months later showed a gain of twenty-five pounds in weight, freedom from fever, but there were cardiac hypertrophy and persistence of endocardial murmurs. Here was a case of puerperal sepsis with valvular localization, and symptoms commonly regarded as those of the malignant or ulcerative variety, yet recovery ensued.

Dreschfeld[2] tells of a patient in whom, after a severe bodily strain, signs of aortic leakage were found—evidently a rupture of the aortic valves. Sometime later the patient had symptoms of malignant endocarditis, repeated chills, intermittent and high temperature (105°), and eventually embolism of the posterior tibial artery. The febrile symptoms subsided after a time, the patient regained his strength, and the diastolic murmur of the aortic regurgitation remained. In this case the valves, damaged by rupture, furnished the suitable nidus—the *locus minoris resistentiæ*—for the development of micro-organisms that in some way gained entrance to the blood.

Sansom[3] treated a woman for what he believed was acute ulcerative endocarditis affecting the mitral and aortic valves. She recovered, with the signs, however, of mitral and aortic regurgitation. Ten months later she suffered from symptoms similar to those he had observed in her first attack. She died and the autopsy revealed ulcerative endocarditis. Sansom regards the first attack as one of ulcerative endocarditis with temporary recovery.

Rosenbach[4] says that mycotic or malignant endocarditis, like any other form of sepsis, is capable—though unfortunately only rarely—of completely healing, often in an entirely unexpected manner. He cites the case of a child that with joint and cardiac affections had complete recovery so far as the joint and heart were concerned, but lost the eye through an ophthalmia, an evidence of the malignant, microbic nature of the trouble.

Fraentzel[5] saw malignant endocarditis develop in two cases of severe uterine phlebitis. The women were both living, the one 22 years, the other 11 years, after the occurrence of the endocarditis, though with slight valvular defects. He also saw two cases of uncomplicated primary malignant endocarditis in which the chills gradually ceased and there finally remained nothing but a vitium cordis. One of these patients died three years later of the mechanical effects of regurgitation.

Dr. N. S. Davis, Jr.:[6] Male twenty-five years, non-alcoholic. Headache and dyspeptic symptoms, with some dyspnea on exertion for about a year. Physical examination negative on admission to the hospital. For one week temperature and pulse normal. Then temperature like typhoid, endocardial murmur, irregular chills, phlebitis of vein in leg, anemia, emaciation; gradual recovery. Credé ointment used. Malaria excluded by examination of blood. No rose spots of typhoid, no Widal, no tympany. Regarded by Dr. Davis as ulcerative endocarditis with recovery.

T. L. Coley:[7] Male twenty-six years old, rheumatism at nine years. Never quite so well after, suffering somewhat from dyspnea and palpitation. For six weeks furuncles, a possible source of the infective trouble. Had precordial distress, syncope, with rigors. Serous diarrhea. Became weak and emaciated. The heart showed great enlargement, and typical signs of aortic regurgitation, including Corrigan pulse. Also a double murmur at the apex and accentuated pulmonic tone. A pericardial friction rub was heard. Palpable spleen. Repeated chills, fever and drenching sweats; morning temperature subnormal. Irritable stomach. Marked secondary anemia, reds 2,100,000, hemoglobin 26 per cent., whites 7,200. No organisms detected in blood (four examinations). Urine albuminous, twice with blood; epithelial casts. At times muttering delirium. In bed from November 15, 1895, to May 20, 1896. In August, 1896, had regained weight and was able to do light work. Physical signs of mitral and aortic lesions.

Warren Coleman:[8] Female, aged twenty-three years, in previous good health. Vaccination two months before followed by extensive cellulitis and axillary adenitis. Weakness, fever, pains about joints and in three days areas like erythema nodosum. Chills and sweats on many occasions. Septic appearance; anemia, continued fever up to 103°. Heart showed mitral murmur with accentuated pulmonic. Right heart increased in size during illness. Aortic roughening and murmur developed. Pulse grew intermittent and irregular, vessels of neck pulsated visibly. In six weeks improvement. Examination of chest two and a half years after showed no murmurs and very little increase in size. Previous to the fever the heart had been examined and found normal.

Edmund Cantley:[9] Male, twenty-four years old, good previous history. For three weeks nausea, weakness, slight chills and fever, headache, pains especially in joints. Spleen palpable. Rigors at irregular intervals, sometimes two in a day. Temperature high. A blowing systolic murmur at the apex and a more marked systolic murmur at the lower end of the sternum. After a prolonged course, with numerous chills, fever and sweating, with weakness and emaciation, there was gradual improvement and he was discharged in good condition eight months from the commencement of his illness. The murmur at the apex finally disappeared, but the one to the left of the lower end of the sternum still continued to be heard.

J. W. Washburne:[10] Female, aged twenty years. Uneventful personal history. Pains in joints, headache, shivering. Heart, lungs and urine normal and no external evidence of disease of the joints. Irregular, intermittent pyrexia. Temperature at times normal, at times 102°-105°. Rigors and sweats. Slight leucocytosis and reduction in hemoglobin and red corpuscles. A distinct diastolic bruit developed, best heard on the left side of the sternum at the third intercostal space. Improvement followed the use of antistreptococcic serum, altogether 1030 cc. being given.

Pye-Smith,[11] at a meeting of the Hunterian Society, reported a case in which emboli had been observed in various arteries forming aneurysms. This case, regarded by him as ulcerative endocarditis, recovered.

Margaret Pease:[12] Female, sixteen years old. Palpitation, dyspnea, aching of joints, rashes, loud mitral systolic murmur and faint aortic diastolic. Murmurs changed in character; a presystolic apical murmur appeared. Pericardial and pleural frictions. Spleen palpable. Temperature high and very irregular. At time of discharge (three months) was well, except for aortic and mitral regurgitation. Antistreptococcus serum employed.

Albert Woldert:[13] Female, nine years old. Complained of pain in ankle and knee which subsided in a few days. Loud, rough systolic murmur was heard over heart. Afterwards, chilly sensations with high and irregular fever, with sweating; anemia was profound. "In many respects it resembled a case of malignant endocarditis, but the child recovered, which argued against this view."

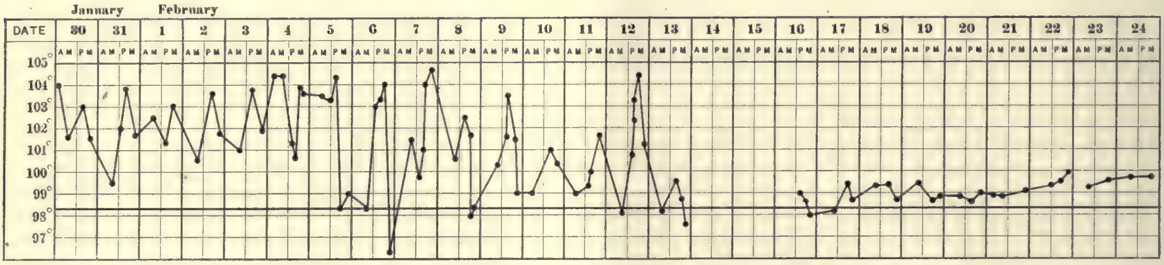
Dr. Sainsbury:[14] Patient male, aged thirteen years, admitted to hospital June 22, 1896, complaining of pain in the chest and heart, which first began June 6. Sleepless, could not lie down; cough, weak, feverish, and later, delirious at night. No history of rheumatism or chorea. As a baby had pertussis and measles. Temperature on admission 103.2°. Apex beat in fifth interspace, four inches to the left of midsternal line. Dulness from first left intercostal space to right border of sternum. Thrill and double murmur at apex. Some impairment of breath sounds over both bases behind and crepitation over whole right side of back. Liver and spleen not palpable. Urine negative. June 24, violent delirium at night. Temperature 100-101°. No bacteria found in blood June 25. Marked dulness over left lung behind and increase of vocal fremitus. Sputum rusty, no rigor. June 26, symmetrical erythematous rash appeared on buttocks spreading to rest of body. This lasted five days. July 1, streptococci found in the blood. July 20, temperature 102°. Cardiac dulness increasing. July 28, temperature 104°. Cough, vomiting, bloody sputum. No rigor. Spleen palpable. Abdominal tenderness. Emaciation. Use of antistreptococcic serum begun. August 31, patient up and around, feeling much better. Cardiac dulness normal. September 1, another injection followed by temperature 102° and local symptoms. September 14, patient left hospital.

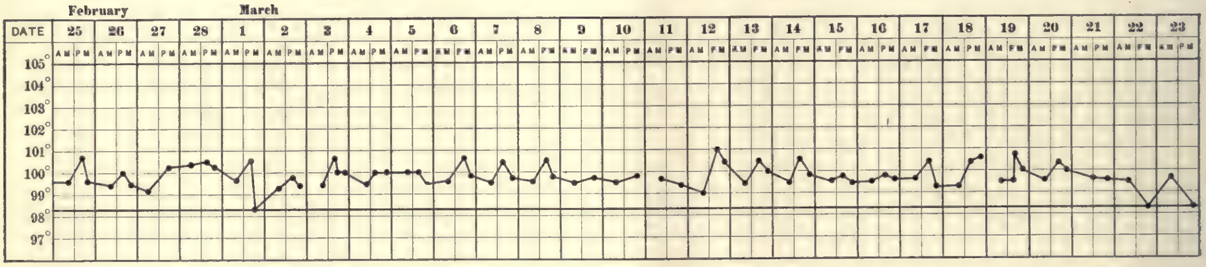
L. LaVastine:[15] Bacteriologic examination of blood showed presence of numerous streptococci and few staphylococci. The use of antistreptococcic serum was followed by improvement. Repeated doses by recovery.

Henry McClure:[16] Female, aged twenty-six years, complained first of pain referred to back of chest and shoulders. Temperature rose to 103° and distinct murmur appeared over aortic cartilage. Patient became delirious, had involuntary evacuations, became slightly jaundiced, had a rapid pulse, an irregular temperature, at times as high as 105°, and in about two weeks, several rigors. The aortic murmur became loud and harsh and was carried well up into the vessels of the neck. Lungs negative. Slight albuminuria. Temperature normal for twenty-four hours for the first time at end of sixty-second day. Recovery with normal heart sounds at end of six months.

McClure's second case was a man aged twenty years, who with dysenteric symptoms developed muscular and joint pains, fever and a well marked mitral murmur. A *phlegmasia alba dolens* appeared in the left leg. After two months, recovery with normal heart findings.

Sir R. Douglas Powell:[17] Patient, male, twenty-one years old. Had slight defect at aortic valve. Given to violent exercise. On May 15 he dined out with a friend and was taken ill with vomiting, faintness, fever 102° and general malaise. Cardiac murmur, aortic regurgitant in character. Temperature continued to rise for four days. No rheumatic symptoms. On eighth day had chill. Temperature which had been ranging from 100°-102° mounted to 105°. In four days had another chill, temperature 105°. Sometimes he had two chills in one day. With chills sometimes had sharp pain in region of spleen. The latter was palpable. Aortic murmur marked; a rough, mainly systolic, murmur over left auricle. Yeast injected from July 1 to September 1. Cardiac dulness increased upward and to right. Acute right pleurisy with effusion developed. Rigors now prolonged to intervals of six or seven days. Patient discharged September 1, and was seen in October; has been well since.





J. Mitchell Clarke:[18] Female, twenty-two years old. Four years before, muscular rheumatism and pleurisy with effusion. Admitted for dyspnea, precordial pains, slight swelling of ankles. Had enlarged heart and systolic murmur at apex. Temperature for three weeks 100° to 101°. Then rigor, bronchopneumonia, higher temperature for four days. Temperature normal for a week and then rose in irregular fashion, being, as a rule, normal or subnormal in the morning and from 100° to 104° in the evening. A new systolic murmur appeared in the pulmonary area and a diastolic murmur in the aortic region. The pulse became weak and collapsing. The murmurs varied in intensity from day to day; the heart increased in size. The fever lasted for six weeks. The patient was very weak and anemic but recovered, being treated with antistreptococcic serum, though no organisms were found in the blood. At the time of discharge no systolic murmur could be heard.

W. Hale White,[19] during his lecture, refers to two cases with all the symptoms of malignant endocarditis. One, a woman, after her confinement developed symptoms of endocarditis and after three months she was apparently cured, the heart murmur having entirely disappeared. Also refers to another patient who presented "every sign of the disease," and yet afterwards was in excellent health and remained so for many months.

Chas. G. Stockton,[20] in his remarks on ulcerative endocarditis, recalls a case following vulvar abscess and accompanied by septic inflammation of the neck and right hand that went on to recovery.

Whitehead and Syers:[21] Male, aged 35 years. After earache, a chill, some fever and a distinct systolic murmur in the aortic area. Recurring rigors. Parotid gland became swollen. Temperature subnormal in morning, 105° in evening. Murmur increased in intensity; patient very weak and was in a desperate condition. Precordial friction. Dulness over base of left lung. Temperature normal after ten weeks. Loud systolic, aortic murmur persisted at time of discharge of patient.

I have seen a child of three years with a pneumococcic septicemia starting with throat symptoms—a nearly pure culture being obtained from this locality—causing otitis media and bronchopneumonia. At the end of ten days of serious illness a murmur could be heard at the apex with systole; it varied in quality from day to day. With the appearance of the murmur there were an irregular temperature, a few chills with the temperature jumping from subnormal to 105°, two crops of petechiæ, a splenic infarction, and a long-drawn-out convalescence with persistent slight temperature for weeks, but with ultmate recovery of perfect health; yet with the signs persisting, even two years later, of a mitral regurgitation, muscular compensation being perfect. A five-year-old brother of this boy had at nearly the same time a similar sore throat with abundant pneumococci, an otitis media and a pleurisy. A sister, one year old, had a light bronchitis.

But anatomical proof that ulcerative endocarditis may heal is not lacking. At times there are found by the side of the characteristic acute lesions the evidences of scarring, the destructive process being replaced by a reparative one. Von Dusch remarks:[22] "That under favorable circumstances even the ulcerative endocarditis is capable of at least partially healing is shown by the perforations that have become converted into scarred, callous passages and communications between separate parts of the heart." Perhaps no observations in this line are more suggestive and instructive than those of Harbitz, of Christiania.[23] He divides the acute endocarditides into two classes, the toxic, of which the rheumatic form is the type, and the infectious. The latter class is subdivided into two sub-classes. In the one the endocarditis is clearly secondary to some recognizable suppurative process in some other part of the body; it is not only infectious, but is infecting, its emboli commonly producing suppuration; the symptoms are fulminant, malignant, pyemic; death almost invariably results and little or no evidence of an attempt at repair is found postmortem. The staphylococcus is the organism commonly present.

The other sub-class of the infectious form is generally caused by the streptococcus or the pneumococcus, though the primary infection atrium may escape detection. Irregular or slight fever, chills, rheumatoid pains, anemia, hemorrhagic nephritis, non-suppurating embolic phenomena are present. The symptoms may last for weeks or months. The valves and mural endocardium show smaller or larger, irregular warty or polypoid excrescenses, that are often rather firm, adherent at the base, at times showing calcification. There is often a large amount of fibrillary connective tissue with few nuclei. At times also aneurysmal dilatation of the valves is seen. "On the whole these endocarditides give the impression that the process is old and in the stage of organization; it is tending toward healing." The more extensive destructive changes, ulceration, abscess, necrotic foci in the neighboring valve tissue are generally slight or lacking. Bacteria (streptococci or pneumococci) are found in cover slips, sections, cultures and by inoculation. The condition is clearly an infectious one. Closely related to this form is one in which with similar anatomical findings the micro-organisms can be detected in sections, though in their reactions to stains, in their growth on culture media and in the bodies of inoculated animals, they give proof of a low degree of vitality and virulence or of absolute death. In other words, the process has healed and the patient's death has been due to mechanical and not septic causes. Harbitz[24] has seen ten such cases.

Dr. L. Hektoen has kindly furnished me with specimens, drawings and descriptions of the hearts from three cases where healing has partially taken place and yet where the appearances are such as to warrant one in saying the process was distinctly infectious, if not ulcerative.

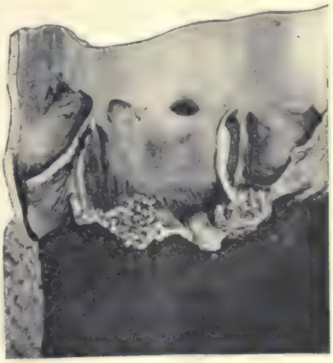
Autopsy Record, No. 987 (postmortem by Dr. H. G. Wells). Antomical Diagnosis: Fibrous pericarditis; acute and chronic aortic and mitral endocarditis; healing perforation of aortic valve; vegetative aortitis; hypertrophy and dilatation of the heart; right hydrothorax and hydroperitoneum; chronic passive congestion of the lungs, liver and spleen; old and recent infarcts of spleen and kidney; chronic nephritis; healed tuberculosis of lungs, pleura and mediastinal glands; double inguinal hernia; right hydrocele; atrophy of testes; anomalous location of gall-bladder; tænia saginata.

Abstract from the record: There is complete fibrous obliteration of the pericardial cavity. The aortic valves are incompetent to the water test. The valve cusps are thick and sclerotic with greyish vegetations upon the ventricular aspect. The posterior cusp has an interesting fenestration running a little below the free margin from the corpus arantii to the lateral attachment of the valve. The margins of this fenestration are rounded and for the most part smooth except near the corpus where are typical vegetations. The upper margin is cord-like and about 2-4 mm. in diameter. The opening is about 1 cm. in length. There are similar vegetations upon the upper surface of the anterior mitral valve, the posterior being sclerotic. The heart weighs 600 grams. There are a few vegetations upon the aortic intima just above the aortic valves.

The endocardial vegetations, when examined microscopically, consist mostly of fibrin with accumulations of mononuclear cells and large masses resembling coccal accumulations. No bacteriologic examination.

Abstract of History:

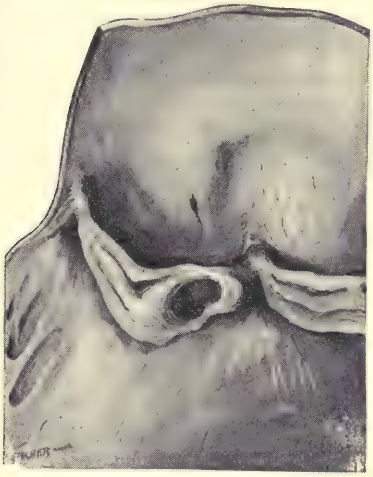
H. H. Male, age twenty-four, laborer, entered the hospital with a history of chills and fever some months ago and cough and shortness of breath for about six weeks. The heart was enlarged with systolic murmur at apex and rough



Case 987.

diastolic murmur over the midsternum. The liver and spleen both enlarged. Capillary pulsation; water-hammer pulse; prominent superficial veins. Temperature ranged from 98.6 to 102°. Sputum and urine normal.

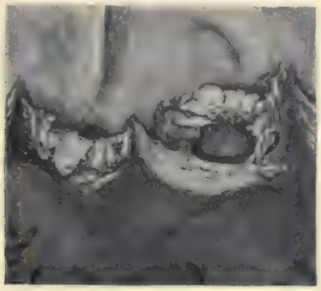
Case No. 903 (postmortem by Dr. T. R. Crowder). Anatomical diagnosis: Healed ulcerative (perforating) endocarditis; hypertrophy and dilatation of the heart; passive congestion of the lungs, liver, spleen and kidneys; left hydrothorax, hydropericardium, ascites, anasarca; arteriosclerosis; miliary gummas of spleen and liver. Abstract from record: The pericardium is smooth. The aortic valves are incompetent to the water test. They are thick, fibrous, somewhat retracted, with rounded margins. The ventricular surfaces are somewhat roughened and finely granular, especially the anterior leaflet, which contains a rounded opening, 7 mm. in horizontal and 5 mm. in transverse diameter, situated below the line of closure and extending to the base and right margin. The edges of this opening are smooth and rounded. The myocardium is firm, brown, with here and there whitish scars, especially in the papillary muscles. The heart weighs 450 grams. There are large, somewhat gelatinous, raised areas in the beginning of the aorta, especially about the points of joint attachment of the aortic valves. The kidneys weigh 350 grams together; the surface is smooth, cortex reddish gray, thicker than normal. Staphylococcus pyogenes aureus was isolated from the spleen and the lung, staphylococcus albus from the heart's blood and bacillus coli from the liver.


Case 903.

History: P. N. Man, aged fifty-one years, adyears, gave a history of having been sick for two months, beginning with a cold followed by swelling of the abdomen and of the ankles. He soon became short of breath and eventually had to sit up nights. He never expectorated blood. While there was palpitation of the heart, he had never had pain. Had syphilis six years ago; small-pox five years ago. Examination showed enlargement of the heart, roughening of the first sound at the apex, and a loud diastolic murmur to the left of the sternum; Corrigan pulse; scrotum, penis and lower extremities edematous; fluid in the abdomen and chest. Temperature normal, pulse 100 to 140. The urine contained a trace of albumin, hyaline, granular and epithelial casts; 400 cc. per diem.

Case No. 1089 (postmortem by Dr. Wells). Anatomical diagnosis: Healed ulcerative (perforating) endocarditis of the aortic valves; hypertrophy and dilatation of the heart; sclerosis ot aorta and coronary arteries; anasarca, hydroperitoneum, hydrothorax, hydropericardium; compression collapse of both lungs; bronchitis; passive congestion and cirrhosis of liver and spleen; healed splenic infarcts; chronic nephritis and healed renal infarct. Abstract from record: The pericardium is smooth. The aortic valves are incompetent to the water test, pulmonary competent. The endocardium of the right heart is smooth. The mitral valves are somewhat thick and fibrous. The aortic valves are greatly deformed by irregular, wart-like masses of fibrous tissue and of rather soft, but not crumbling, white tissue in which are fine calcareous granules. The left posterior cusp shows a large circular perforation about 1 cm. in diameter; the superior margin consists of an irregularly nodular band 4x8 mm., while the inferior is thin and perfectly smooth. The aorta just above this perforation shows a few small warty, rather firm, outgrowths from the intima. The heart, especially the left ventricle, is much hypertrophied and dilated and weighs 650 grams. The myocardium is firm, somewhat mottled, fibrous in the apices of the papillary muscles. There is considerable dilatation of the beginning of the aorta with calcified spots in the thoracic part. The spleen is large (22x12x5 cm.), purplish in color, rather firm; the surface shows depressed, puckered, yellowish white scars, the largest 3½x12 cm.; malpighian bodies indistinct. The liver weighs 2250 grams, is rather firm, mottled, rather rough on the cut surface. After rapidly washing the surface of the outgrowths upon the aortic valves with 1-1000 solution of bichloride of mercury and then rinsing thoroughly and repeatedly in sterile water, pieces were ground up in sterile water (1-2 cm.) from which several bouillon tubes were inoculated with three to four drops each. Several glycerine-agar and blood-serum smears were also made. All tubes remained sterile and microbes were not found in the coverslips. Cultures from the heart's blood, the liver and spleen remained sterile. Streptococcus pyogenes was isolated from the lungs.

History: P. N. Man, agen fifty-one years, admitted September 17, died December 11, 1901. He gave a history of cough for two months with some expectoration, but not of blood. For two weeks, there has been dyspnea, mostly at night, with coincident swelling of the feet. Frequent urination since one year. Never sick before. Examination showed a double murmur at the base and a systolic murmur at the apex; diastolic pulsation of the veins in the neck; enlargement of the area of cardiac dulness. The liver extended three fingers breadth below the costal arch; distinctly enlarged spleen; fluid in the abdomen and edema of the extremities. No temperature; pulse 70 to 90. The urine contained a trace of albumin, few granular and hyaline casts; 1800 cc. in 24 hours. Blood showed 2,710,000 reds, 3200 whites and 40 per cent. hemoglobin. On October 5 he spat up a good deal of blood.



Case 1089.

If recovery is possible it should make one more guarded as to prognosis and particularly in those cases where the infectious agent is the pneumococcus or the streptococcus. It will be noted that in many of the cases reported as cures, where bacteria have been found in the blood, they have been streptococci or the treatment has been by streptococcus serum. It should be the aim of the physician to strive to determine the particular microbe that is at work in a given case because of the value of such knowledge in making up a prognosis and to some extent because of its assistance in treatment. It is possible that some day we may be able to differentiate between the clinical picture presented by an endocarditis due to the streptococcus and the staphylococcus. Some serum test or some hemolytic reaction may be found of practical application. At least the blood can be examined bacteriologically and this will often yield positive results. If one believes in the possibility of recovery, one will be more persistent in treatment. Rest, proper hygiene, nourishing food, iron and arsenic as blood-makers, will be more earnestly insisted upon. And some of the supposedly specific remedies such as the serums, or the Credé soluble salts of silver can be employed, as has already been done by several observers with what they believe to be beneficial effect.

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CHARACTERISTICS OF PULMONARY VALVE AFFECTIONS, WITH CASES.

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OF all cardiac valves the pulmonary is least often affected. Very exceptionally it is a single lesion. Sterling (Gibson's Dis. of the Heart, London, 1898) has not recorded a single case. Fortunately I have brief notes of one.

In association with other valvular diseases, pulmonary affections occur in the ratio of 1 to about 10 per cent. Sperling puts it at 4 per cent. Insufficiency is the form commonly seen in adult life; stenosis in fetal life or infancy.

Pulmonary valve diseases occurring in adult life, however, are usually consecutive to endocarditis of other valves, or arteriosclerosis, the ratio being according to my tables six in a total of 177 lesions verified by postmortems. In my office cases the ratio was put at 3 per cent. and in fifty taken from my clinic by myself and assistants, pulmonary insufficiency was at the bottom of the list. Walsh (Dis. of the Heart, London, 1873, p. 105) from his list makes it occupy the sixth place in a total of seven varieties of lesions. But his clinical notes, not to any very large extent confirmed by pathological data, are interesting rather than convincing. Five of the cases I now record are taken from my postmortem records as former pathologist to the St. Luke's and the Presbyterian hospitals. One was furnished me by the Babies' Hospital. Temporary insufficiency is doubtless of common occurrence. For a slight diastolic murmur can be produced over the second or third left intercostal space after the breath has been held for a brief space, when respiration is again commenced. Chronic insufficiency, however, is not common. Gerhardt in 1890 (Charité Annalen, XVII, p. 255) had only collected twenty-nine cases that were verified by postmortems, and Barié a year later (Arch. Gen. de Paris, 1891, Vol. I, p. 650 and Vol. II, p. 30 and 183) fifty-eight similarly supported by postmortems from the years 1831 to 1874. Pitt, however, has carried the number up to ninety-nine* (Albutt's System, 1899), while, as already said, I am able to add six new cases, brief notes of which I publish in the present paper.

Case I.—Phthisis; fatty heart, chronic parenchymatous nephritis: tricuspid and pulmonary insufficiency (relative). A woman of forty-two years was admitted to Hospital Jan. 23, 1884, with the usual signs of tuberculous phthisis, which were cough, dyspnea, profuse greenish-yellow sputum, night sweats and cyanosis. Pulse reached 104, temperature 102° F. She died of heart failure about two weeks later. At the autopsy all the heart cavities were found dilated, the walls thinned and apparently fatty. The aortic and mitral valves were sufficient, the tricuspid markedly insufficient, the pulmonary less so. The cause of death was put down to fatty heart and chronic parenchymatous nephritis. The tricuspid and pulmonary insufficiency were due to the dilated right heart, such as occurs in the fatty heart of phthisis. The attention of the physicians appears to have been directed to the lungs rather than the heart, so that the lesions of the right heart escaped notice, as very frequently happens.

Case II.—Aortic and mitral endocarditis; tricuspid and pulmonary insufficiency (relative). A widow of forty-eight years was admitted to Hospital June 27, 1885. The patient had enjoyed fair health until three months previously, when she was taken with cough, dyspnea, and night sweats. On examination the apex was found in the sixth space 4½ inches from the median line. Loud systolic murmur at the apex, conveyed to the left and even to the angle of the scapula. A loud systolic murmur heard over the second and third right interspaces, propagated up the great vessels. Aortic second sound inaudible and no aortic diastolic murmur appreciable. Pulse 128, irregular in force and frequency. Later, some enlargement of liver. Mental disturbance. Anteriorly, respiratory murmur rough; sibilant and sonorous râles. Still later ascites developed. The patient died of heart failure. At the postmortem examination the heart was found enlarged, weighing eighteen ounces. Cavities dilated. Vegetations on aortic and mitral causing obstructions at both orifices. Pulmonary and tricuspid valves insufficient from dilatation of the right ventricle. The pulmonary and tricuspid insufficiency were not recognized during life.

Case III.—Arteriosclerosis; tricuspid insufficiency and relative pulmonary insufficiency, due to dilatation of the pulmonary artery. A sailor of fifty-six years was admitted to Hospital on November 23, 1886, for cough, dyspnea and bloody expectoration which had persisted for a month. Syphilitic history of thirty years' standing. On examination he was found to have general edema and emphysema. Visible pulsations in brachial, radial and ulnar arteries; venous pulsation in jugular veins. Urine sp. gr. 1002 albumin 33 per cent. Granular and hyaline casts. Fairly loud systolic murmur heard over the liver and at lower end of sternum. Diagnosis of tricuspid regurgitation made. Pulse hard as a telegraph wire. Cheyne-Stokes respiration. Relief was afforded by the nitrites. Patient died of edema of the lungs. At the postmortem examination the pericardial sac was found to contain eighteen ounces of clear serum. Heart weighed twenty-seven ounces and was hypertrophied, especially the left ventricle; the right was thinned and dilated. Aortic and mitral valves sufficient. Commencing aneurismal dilatation of the aorta. Pulmonary orifice dilated and insufficient. Liver enlarged and of a dark color. Diffuse nephritis.

Case IV.—Aortic and pulmonary insufficiency, due to adhesive pericarditis, etc. A man of thirty-four, from Ireland, blacksmith. Admitted to Hospital on September 18, 1885. In the preceding January he had a cough and six weeks previously hemoptysis, losing about 1½ ounces of blood. Had suffered from acute inflammatory rheumatism. On examination the heart's apex was found in the fifth space, 2½ inches from the median line. Soft systolic murmur over the aortic and also over the pulmonary area with accentuation of the second sound. Dulness with cavernous breathing over second and third left interspaces. Below, amphoric breathing. At right apex some signs of softening.

Patient died of cardiac failure October 3. At postmortem examination it was found that the heart weighed only twelve ounces. The pericardial sac had been obliterated by an extensive adhesive pericarditis. The heart substance was soft and flabby; walls thinned and cavities dilated. Slight fatty change in mitral leaflets. Aortic and pulmonary valves seat of numerous small perforations; and it was held at the autopsy that, owing to the relaxed condition of the walls they must have been to some extent insufficient. Cavities in both apices. Parenchymatous nephritis, etc. A diagnosis of aortic disease had been made. This was not a satisfactory case from several points of view, but it is none the less on record as one of aortic and pulmonary insufficiency, and I therefore record it. And it seems as if this diagnosis accords best with the auscultatory phenomena and the postmortem findings.

Pinhole openings in the valves are sometimes found as the result of congenital malformation. They never cause murmurs, but good sized openings and clefts may cause them. The pulmonary area is, of all valvular areas, the most likely to lead to error for the reason among others that it is so close to the aortic. In fact, as already stated, aortic murmurs may sometimes be heard best over the pulmonary area and vice versa. Or they may be best heard above the second cartilage, or over the sternum opposite to it. But there are murmurs heard over the pulmonary area that so far as we know are quite independent of the valves, being due to anemia, change of position, etc., etc. Hence the danger of putting too much faith in auscultatory signs at this point.

Congenital insufficiency of the tricuspid is apt to be associated with pulmonary stenosis and insufficiency. Insufficiency may be found at any age. Barié found it between three and seventy-five in acquired cases. It does not seem to have any preference in the matter of sex.

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* Of these forty-four were taken from the pathological records of Guy's Hospital.

According to Pitt, whose statistics are based on the largest number of tabulated cases, the chief cause given was ulcerative endocarditis, while next in importance were pulmonary stenosis, aortic aneurism, pulmonary dilatation, or some abnormality in the formation of the valves. In this connection it may be stated that Barié found dilatation of the pulmonary artery in sixteen, or 27 per cent. Among the causes given by Pitt for the ulcerative form were gonorrhea, puerperal fever, pyemia and pneumonia; while associated with the abnormalities were patent ventricular septa and patent ducti arteriosi. Stenosis causing insufficiency may also be due to adhesion of leaflets.

The congenital form, which is pretty certain to be associated with stenosis and cardiac anomalies, will be readily recognized by a general cyanosis of intense character, clubbed fingers and toes and an abnormal development of the chest. In these cases the murmur is soft because the blood stream lacks vigor and there are no ulcerations. In the acquired form there are apt to be (together with cyanosis and dyspnea) signs of defective nutrition as shown in my cases, for all (four) had chronic pulmonary disease with cough, dyspnea, hemoptysis, and two night sweats.

The most important physical signs are: 1. Displacement of the apex. 2. Diastolic thrill in the second or third left space (in 20 per cent. Barié) from the edge of the sternum to a distance of one inch to the left of it, conducted down the left edge of the sternum (Boyd)*. 3. Double murmur (in about 25 per cent.). 4. Diastolic bruit intensified by inspiration. 5. Implication of the lungs. 6. Murmur intensified in the sitting position. 7. When a long breath is taken the vesicular murmur is jerky. 8. Hemoptysis. 9. Dyspnea. 10. Usually, but not always, hypertrophy of the right ventricle. 11. Epigastric pulsation. The pulse has no distinctive character.

Often there will be no bruit at all; we must, however, discriminate against aortic disease (insufficiency) by the absence of hypertrophy of the left ventricle by the Corrigan pulse. The murmur should be louder than an aortic.

According to Barié, the diagnosis was made in but thirteen out of fifty-eight cases (22 per cent.). According to Pitt, the diagnosis was made in more than half his septic cases. The ulcerative process seems to be necessary to cause murmurs. However, the diagnosis would certainly be made more frequently if physicians would be systematic in their examination of the heart, whenever there was a suspicion of cardiac disease, and make notes of all the murmurs at the four valves.

The prognosis is unfavorable in congenital disease. Acquired cases have been known to live to seventy-five. My four acquired cases reached ages between thirty-four and fifty-six; for after all, effective compensation may be established by hypertrophy of the right heart, just as in tricuspid regurgitation, with which it is so generally associated. And because general malnutrition, and infections like gonorrhea, measles and syphilis, and phthisis, are potent factors, the success or lack of it in treating these maladies must largely influence the expectation of life. So that in the matter of prophylaxis and treatment infections must be avoided and combated, and special care must be given to cases of pulmonary implication.

When there is sepsis from infection, the use of the newer antistreptococcus (and possibly in lung cases), antistreptococcus sera offer hopes of cure, that are certainly worthy of consideration, if used in conjunction with other sound symptomatic measures. The lung affection, of course, should have the first attention.

Pulmonary stenosis or obstruction is one of the most frequent of the many congenital cardiac anomalies that defy classification owing to their varieties. Usually this valve defect is associated with abnormalities of the large vessels as well; with imperfections of the interauricular or interventricular septa, or the valve leaflets. The two most common anomalies are patency of the foramen ovale and of the septum between the ventricles.

Usually the valve defects are curious rather than dangerous to life, for though they may be irregular in number or shape, or the leaflets may be improperly implanted, they often do their work satisfactorily. But when the valves are not separated, are twisted or missing, whether from imperfect or arrested development or prenatal inflammation, so that the caliber of the outlet is affected, the expectation of life will be seriously altered. Simple thickening of the leaflets may be due to intra-uterine disease, or senile change. If the function of the valve is not interfered with, it may not be one of importance; but endocarditis of the pulmonary valve is a very serious matter, as it easily destroys these segments, which are extremely delicate and so may produce permanent insufficiency.

One of the most common of the associated extracardiac anomalies is the persistence after birth of the ductus arteriosus, which in fetal life connects the pulmonary artery with the descending aorta.

And yet we must recognize that in a measure one defect compensates another. If, for example, there should happen to be complete closure of the pulmonary artery, the patency of the ductus arteriosus would be a compensatory defect, permitting the aorta through the duct to supply the lungs with blood. And so, if the tricuspid happened to be closed, the patent foramen ovale would allow the blood from the right auricle to pass to the left auricle. Among other minor anomalies we also find, occasionally, strictures either of the pulmonary artery or one of its branches, or narrowing of the infundibulum, which lies beneath the pulmonary valves. There are already to be found on record a number of cases presenting these and other anomalies. In fact the pathological department of any hospital caring for infants or young children would naturally have frequent references to these defects. This is true of the Babies' Hospital of this city with which I have been connected for fifteen years. In a comparatively small number stenosis (obstruction) is acquired. What the ratio between these congenital and acquired stenoses is I do not know. It is a difficult matter to determine, even with the complete clinical and postmortem records in view. Many of the older reports do not make it plain. In fact, it was not attempted until the time of Constantine Paul in 1871. Besides, in many instances an acquired lesion like endocarditis has been engrafted on a congenital malformation.

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* Scott, Med. and Surg. Journal, 1889, Vol. iv., p. 121.

As a single congenital lesion pulmonary stenosis is a great rarity. Fortunately, through the assistance of Dr. Wallstein, Pathologist of the Babies' Hospital, I am able to record one case, which I have already alluded to.

Case V.—An infant of five months died at the hospital after the following symptoms had been noted: A diffuse apex beat, a systolic murmur at the base heard with greatest intensity at the left of the sternum, and transmitted up the neck on both sides. Diagnosis not made. No cyanosis. At the autopsy the pulmonary orifice was found one-third smaller than normal. No other cardiac lesion.

It will be noted from this case that stenosis of the pulmonary does not necessarily produce cyanosis. Pitt (Albutt's System, Vol. VII., p. 9) has collected fourteen cases of acquired stenosis. I have collected and verified fifteen, yet have failed to get access to fully one-half of the literature on this subject. The references to my cases I give here.

[1] Ebstein, Deutches Arch. f. klin. Med. Bd. VII, p. 281.
[2] Peacock, Lancet, 1868. Vol. I.
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[5] Whitley, Guy's Hosp. Repts., III, 1857, p. 255.
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[10] Constantin Paul, Soc. Med. de Hop. de Paris, T. VIII.
[11] Schwalbe, Virchow's Archiv, Bd. 119, S. 2, p. 45, 1890.
[12] Schwalbe, Virchow's Archiv, Bd. 119, S. 2, p. 45. 1890.
[13] Schwalbe, Virchow's Archiv, Bd. 119, S. 2, p. 45, 1890.
[14] Wagner, Archiv f. Heilk., 1866, S. 518.
[15] Colberg, Deutsches Archiv f. klin. Med., Bd, 5, p. 565.

I am inclined to think that the following instance was also one of temporary stenosis, caused by extracardiac pressure, relieved by evacuation of the abscess. Otherwise I have none in my postmortem records.

Case VI.—A groom, age twenty-eight years, was admitted to Hospital in July, 1883, with an abdominal tumor continuous with the liver and extending into the epigastric and right hyperchondriac regions. Palpable pulsation over the pulmonary area, extending up to and under the clavicle and attended with a soft systolic bruit. No other signs of cardiac disease. In the following month two incisions were made into the tumor and three ounces of pus were removed each time. The man survived the operation three weeks, dying of progressive emaciation and sepsis. At the autopsy the liver was found to be greatly enlarged, weighing eighty-eight ounces. It apparently had compressed the lungs, both of which were unusually dry, the left especially, and by pressure had caused the same kind of temporary stenosis of the pulmonary artery as is sometimes seen when aneurisms of the aorta, by pressure, alter the caliber of the vessels from a circular to a crescentic form.

In congenital disease the cause must be laid to lack of development. In the acquired form infection, according to my tables, plays a most important rôle, the order of frequency being rheumatism, aneurism, syphilis, gonorrhea. Doubtless further researches into the etiology of this subject will enlarge the number of causes and perhaps may affect the ratio here given. Pitt in his fourteen cases found rheumatism a causal factor in eight, or 57 per cent.

In the matter of sex there is apparently no difference.

In symptomatology there is a wide difference between the congenital and the acquired forms.

In the former there is usually general cyanosis, though not always, as in the instance I have here given. But there is usually a lack of physical and mental development. The patient complains of headache and is somnolent, or has hebetude; is undersized, has a bulging chest and a protruding abdomen. There is defective development of the genitals with clubbed fingers and toes. The eyes may be prominent. But the physical signs are less trustworthy. The right ventricle is enlarged in complicated cases; both are enlarged when the left ventricle is called on for extra work. The murmur is systolic and usually loud, if there are vegetations; and it may be heard all over the precordial area, but its intensity is apt to be greatest over the pulmonary area, *i. e.,* the second left intercostal space, close to the sternum; and the murmur is continued up towards and sometimes under the clavicle. Exceptionally it may be best heard lower down. In one case[*] (Hun's) it was best heard at the fifth left sterno-clavicular junction.

In acquired obstruction we should look for an antecedent infection and especially for venereal disease or rheumatism.

As distinguished from the congenital form there is in the acquired less often cyanosis, and there are none of the characteristics of arrested mental and physical development. But if there is cyanosis it is increased by coughing and there is dyspnea. The murmur is more definitely located than in the congenital form, because the force of the stream is undiminished by defects in the walls of the heart. It should be loud and rasping in the endocarditis forms. If the patient hold his breath it should be somewhat fainter. The apex beat is apt to be forcible and diffuse, and there may be a thrill. The second pulmonary sound should be faint, but there may be insufficiency and a double murmur. The murmur is apt to be propagated from the middle of the base of the heart up toward the left shoulder as far as the clavicle. The point of greatest intensity is usually in the second left interspace. Usually there is an attendant pulmonary or bronchial disease of a purulent character.

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[*] Albany Med. Annals, pp. 57-66, 1897.

When, as in the case I have given, the pulmonary stenosis is single, hypertrophy should be confined to the right heart. If for any reason the left heart has been called on for extra work it will naturally hypertrophy. There is nothing characteristic about the pulse. Some edema, even anasarca and albuminuria, may be expected toward the end.

The diagnosis is never easy. Even in the congenital forms pulmonary stenosis is, as a rule, as I have said, only one of many anomalies; two at least of them, viz.: the patency of the foramen ovale, and of the interventricular septum capable of producing in the one a diastolic, and the other a systolic murmur; and in infants it is hard to distinguish between the two. However, as all heart anomalies are apt to center about pulmonary stenosis, a bold guess will sometimes be rewarded by success. In acquired cases, even when they have been most carefully studied as to every auscultatory detail, the diagnosis has seldom been made. Paul and Mayer, however, have each recorded a successful antemortem diagnosis.

The prognosis is never good. Exceptionally, congenital cases have lived to forty; usually they die before the fourth year of life, of tuberculosis.

In the acquired form the prognosis is more favorable. One of Schwalbe's patients lived to be eighty-four, another to be sixty-eight, while Rindfleisch and Oberneier's died at sixty-five. Usually, however, they do not survive the third decade.

It is well to remember that at the birth of these infants, after removing the mucus from the mouth and nostrils, the circulation should be stimulated by slapping of the surface. Artificial respiration by Sylvester's method, the author's or others; or the lungs may be inflated by the catheter introduced down the larynx. After the circulation has been established in this way, the infant should be kept in a warm, dry room. In general patients with this congenital malformation should live an uneventful life, in a warm, equable climate. They should have systematic exercises and their diet should be carefully regulated. Their methods of life should be such that they have no physical or mental strain. Matrimony should be sternly prohibited.

In the acquired form infections and rheumatic tendencies should be combated, and the cardiac symptoms should be met, as they arise, with appropriate treatment.

A BRIEF CONSIDERATION OF THE SCIENTIFIC TREATMENT OF A FEW OF THE DISEASES OF THE HEART.*

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When a physician has discovered by a careful physical examination that he has a patient with a heart lesion, before beginning treatment he should convince himself that medicine which acts directly on the heart is absolutely necessary.

In the early years of his practice the young physician, by reason of the great stress that was placed upon the proper differential diagnosis of the various heart murmurs during his college course, is inclined to begin medical treatment at once upon the discovery of an adventitious heart sound. In point of fact it is often better to give no medicine for the heart lesion. In no instance in medicine is the old trite expression, "Nature is her own best physician," more true than in diseased conditions of the heart. The regurgitation caused by a leaky valve is met by compensatory hypertrophy; again the heart-wall thickens in response to increased work thrown upon it by reason of a stenosis. If the patient complains of great weakness and shows a rapid, small compressible pulse and has attacks of palpitation of the heart and fainting spells, he is suffering from myocardial weakness and Nature is demanding body rest, in order that she may restore herself.

It is to the condition of the myocardium that I wish particularly to call attention. When the myocardium is doing its work properly and fulfilling all the requirements of nature in a physiological way, that is, when the blood pressure is neither above nor below the normal, when the tissues are properly supplied with blood, no matter what heart murmurs are present, no medication is indicated. It is not then the presence of heart murmurs that indicates the necessity of heart medication, but rather the condition of the heart muscle and the inability of the heart to do its work properly. Even when we find a lowered blood pressure, and the characteristic symptoms of weak heart, be the condition due to a leak in one or more of the valves or to a weakened myocardium (from any of the numerous causes), rest in the recumbent position for a week or ten days, or longer if necessary, will often do all that the patient needs. We can thus hold in reserve for future use our heart tonics until Nature is no longer able to restore herself by rest.

We should remember that the heart muscle is apt to become involved and diseased when a patient is suffering from either endocarditis or pericarditis; we should be on the watch for myocarditis during an attack of rheumatism and should push the salicylates and the iodides (not of course, in doses sufficient to interfere with the stomach) with a view to prevent the disease from spreading to the heart muscle. In cases of gonorrhea, pyogenic infection and influenza eliminative medication should be resorted to as promptly as possible to prevent heart involvement and the coal tar preparations (owing to their depressing effect upon the heart muscle) should be scrupulously avoided.

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* Read before the Northwest Medical Society, 1902.

When we have one of the acute infectious diseases to treat we must try to prevent myocardial weakness from toxemia by directing our treatment to the disease causing the toxemia; if diphtheria we will lessen the poisoning by giving proper doses of diphtheritic antitoxin early; if due to scarlet fever or typhoid fever or pneumonia, we should use every possible means to prevent heart exhaustion by proper medication, stimulation and rest. We can also lessen the amount of poisoning to the myocardium by keeping the excretory organs active and by giving proper tonic treatment and carefully selected nutrients in addition to the specific treatment for the primary disease. We can also save the strength of the heart by absolute rest in bed after the disease has run its course until the heart has regained its strength. Much trouble has been occasioned in cases of influenza by patients refusing to rest in bed during and after the attacks. They have thrown too much work upon the heart at a time when the myocardium is weak and they have suffered for a long time afterwards from dyspnea, precordial pain, small and irregular pulse, a feeble impulse and weak sounds. All these conditions indicate myocardial weakness and could be readily avoided by absolute rest combined with cardiac stimulants like strychnine, caffeine, digitalis, and alcohol.

Too great stress cannot be put upon the importance of improving the general health of the patient with heart lesions by proper hygienic surroundings, by good nutritious food, and by the use of tonics to improve the appetite, digestion, and assimilation. The giving of iron in some assimilable form is advisable in order to enrich the blood. By pursuing this line of treatment we supply an improved blood to the heart muscle, as well as to the general muscular system; we nourish and strengthen the myocardium and make it able to fulfil its increased duties.

It is now generally conceded that the pneumogastric nerve is the trophic nerve of the heart and as digitalis stimulates the action of this nerve and favors increased blood supply to the heart, it stands out boldly as our best heart tonic. Under its influence the muscle increases in strength. Digitalis prolongs the disastole and increases ventricular systole, which again results in more blood going into the coronary arteries and circulating in the capillaries of the heart, thus bringing more nutrition to the heart muscle and carrying off the waste products promptly from it. Digitalis slows the rapid, weak heart, regulates the beats and thus saves the heart that is aimlessly trying to pump the blood by rapid, incompetent efforts to hungry, anxious peripheral tissues.

We should in these conditions institute rest at the same time that we prescribe digitalis, or at least, we should insist that a patient (who has a weak heart muscle) should not overtax his physical strength. Signs of incompetency are cough, cyanosis, dyspnea, edema, etc. We should investigate the kidneys and the peripheral vascular system of such patients. The heart enlarges from a leak as well as from stenosis.

The heart may also become enlarged when no valvular or orificial lesion exists. This may be seen in hard trained athletes or in persons who are constantly doing heavy physical work. This is a natural physiological consequence and needs no particular medication or attention on the part of the physician. Again we may find an enlarged heart which is due to tissue changes of the muscle, such as fatty overgrowth, fatty degeneration or fatty infiltration followed by dilatation. These show the characteristic symptoms of weakened heart, namely, breathlessness on exertion, palpitation, dyspnea, quickened pulse, cold and clammy extremities, etc.

While the differential diagnosis in these conditions is very obscure yet the treatment in each individual case is indicated as much by the patient's general state of health as by his heart conditions. Such treatment should be along some such lines as these: (1) The cause of the degeneration should be removed if possible; (2) the patient's hygienic and dietetic treatment should receive due consideration, so as to improve his nutrition; (3) in some cases digitalis should be employed, especially if the patient shows signs of commencing dilatation; (4) in other cases (if anemic), hematinics with arsenic and strychnine are our best remedies: some of these cases do well under skilfully directed physical exercise and light gymnastics, increased or decreased according to the peculiar effect upon the patient.

If the patient is suffering from general obesity with cardiac enfeeblement, the method of treatment introduced by Oertel can be followed, which is briefly: (1) Reduction of the amount of liquid taken with the meals and during the intervals; frequent bathing (Turkish baths if practicable); (2) the diet is made up largely of proteids, and (3) exercise should be gradually increased from day to day.

The points which I wish to emphasize in this paper are:

(1) Each patient showing a heart lesion must be a study unto himself.

(2) No heart medicine is needed unless the myocardium is unable to do its work in a physiological way.

(3) The heart muscle should demand more consideration than the heart murmur.

(4) Rest is one of our best therapeutic agents.

(5) We should try by every possible means to prevent myocarditis in all diseases where this condition is apt to arise.

(6) After any severe diseased process we should insist upon the patient resting in bed long enough to allow the myocardium to be restored.

(7) We should improve the general nutrition

of our patients and restore the blood to a normal standard by the use of blood tonics.

(8) We should investigate the kidneys in all cases showing signs of cardiac incompetency.

(9) Physical exercise, light gymnastics and properly selected diet are valuable aids in the treatment of cardiac disease.

THE PATHOLOGY AND TREATMENT OF ENDO- AND PERICARDITIS.*

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Inflammations of the pericardium differ but little in their pathology from similar changes in other serous membranes. The most common lesion of the pericardium found at the necropsy examination is an excessive amount of serous fluid in the pericardial sac, or that condition known as a moderate hydropericardium. In all conditions of malnutrition, the vessels of the pericardium lose their normal nutritive tone, and thus permit the escape of a larger amount of simple serous fluid into the pericardial sac than is normally the case. In a few instances we meet with a hydropericardium that is the result of more active changes in the vascular walls of the pericardium, then the hydropericardium becomes an active lesion and may call for positive treatment during life; in some instances the symptoms are so urgent as to suggest the possible necessity of aspirating the pericardial sac, as is so frequently done in connection with the pleural cavities. These large accumulations of serous fluid in the pericardial sac may be simply a part of a general anasarca, or they may be local in nature and due directly to inflammatory changes in the pericardium.

Another quite common condition of the pericardium found at the necropsy is the so-called "milk patch." It is a white glistening appearance of the pericardium, due to the formation of new connective tissues in or underneath the pericardial membrane. Patches of this kind vary in size from very small points to large and irregular masses. In the latter case they form smooth opaque patches of a pearly aspect, and as a rule they cause a slight elevation above the ordinary surface of the pericardium; they are usually found on the anterior surface of the heart, but may occur at any point. By some these patches are thought to be the result of a previous inflammatory action; by others to be due to a disturbance in the nutritive supply distributed to these localized points, augmenting thus the nutritive activity and in no way connected with an inflammatory process. This latter view is probably the correct one.

Still another non-inflammatory lesion of the pericardium is small punctate ecchymoses underneath the free surface of the pericardium. They are more commonly located in the visceral layer, but may be found at any point. This condition occurs in cases of asphyxia, in leucocythemia, scurvy, pernicious anemia, etc.

Occasionally a large hemorrhage may occur into the cavity of the pericardial sac, non-inflammatory in origin, due to the rupture of the heart or one of the large blood vessels.

All of these conditions, however, except the excessive hydropericardium already mentioned, call for little or no treatment.

Under the head of non-inflammatory lesions of the pericardium may also be mentioned the occasional involvement of the pericardium with new growths, such as carcinoma, sarcoma, gummatous formations, etc.

Tubercular involvement of the pericardium is generally considered as an inflammatory process. With this condition we find the pericardium or the subpericardial tissue infiltrated with miliary tubercles. Here again, owing to the generally deteriorated condition of the system, hemorrhages are not infrequent. If the tubercular infiltration excites a surrounding inflammation all the products of an acute exudative inflammation will be found in addition to the tubercles when the pericardium is opened. In the fluid contained in the pericardium, and in its contained flakes of lymph tubercle bacilli may be found; this condition, however, and the finding of tubercle bacilli is extremely rare.

Taking up now the simple and acute inflammations of the pericardium, we find in the early and acute stage simply a deep and intense congestion of the pericardium, which condition is most marked, as a rule, on the visceral layer and around the roots of the great vessels. In some of the more intense cases there will be subpericardial hemorrhages, also a little blood-tinged serum in the pericardial sac, death ensuing before further inflammatory changes have been wrought in the pericardial membrane. More frequently, however, the inflammation results in a more or less abundant exudation of all the constituents of the blood into the pericardial sac. In some instances serum will predominate; in other cases the fibroplastic exudate will be the most abundant; in still others the two will be about equally divided, and in some rare instances it will be purulent in character.

In the nonsuppurative type, if the case pursues a favorable course the fluid will be absorbed and later on a part or all of the plastic exudate will also be liquefied and absorbed, and a complete recovery established. More frequently, however, there is the development of some new tissue with the formation of more or less permanent bands of new connective tissue connecting the visceral and parietal layers of the pericardium. Only in rare instances the adhesions may become so general that they completely obliterate the cavity of the pericardium. When this occurs it very materially interferes with the perfect action of the heart.

When we come to the pathology of the endocardium a somewhat different problem confronts us; this is on account of the difference in the histological construction of the two membranes, and also because its free surface is constantly covered by the ever-flowing current of blood. Histologically the endocardium is a more dense structure than the pericardium. The former has less surface vascularity than the serous membrane of the pericardium. Hence, when the endocardium is the seat of an inflammation there is less redness, less ecchymosis, and fewer punctate hemorrhages. Yet they are not altogether absent. If there is developed an inflammatory exudation upon the surface of the endocardium, as occurs in connection with the serous membranes in general, it is carried away by the current of blood constantly passing over the inflamed surface, for it is not found after death. What occurs more frequently, so far as we are able to judge, is a congestion of the vascular structures which constitute the deeper layer of the endocardium. This causes an augmented nutritive activity of the cellular structures forming the more superficial portions of the endocardium. Following this we have a variety of changes; they may result in a simple multiplication of the cells in the substance of, or upon the surface of, the endocardium. If located in the valves of the heart, they will appear swollen, soft, and sponge-like; if the lesion is located at the more closely attached portions of the endocardium as against the cardiac wall, it will give rise to soft velvety patches having a pinkish color. On the other hand, in connection with the valves there may be only a surface cellular proliferation, and thus we have formed the various grades and types of vegetations found at the necropsy. In some instances these cellular proliferations may grow so rapidly that their nutritive activity is not perfectly sustained and they will be detached by the current of blood constantly flowing over them, thus giving rise to emboli that may lodge in various parts of the body. In still other instances these vegetations will become more highly organized and remain permanently, thus interfering continuously with the flow of blood through the valve orifice, or with perfect closure of the valve. These vegetations may act, also, as foreign bodies upon which the fibrin-forming factors of the blood will be deposited, as fibrin; and this fibrin will later be detached, forming emboli, which may be dislodged and later lodge in some distant capillary or small blood vessel in various parts of the body. These changes in the endocardium of the valves may give rise to the formation of new connective tissue which by its contraction will distort the valve and make it incompetent. Or the newly formed connective tissue may undergo fatty degeneration, to be followed later by ulceration and calcareous infiltration. One or all of these changes may occur singly or together in the same case and thus cause an endless amount of damage to the valves and their physiological action. In some rare instances small pus formations are found in connection with this simple form of endocardial inflammation.

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These small pus formations in simple endocarditis must not be confounded with that special type of endocardial inflammation which has been given the distinctive name, "malignant endocarditis." This name being used because this form of lesion always has for its etiological and distinguishing feature the presence of certain microorganisms; it is further a rapidly ulcerative and destructive process, and usually terminates the case in death, in a comparitively short space of time. On the other hand, cases have been reported as chronic in character. This is hard to comprehend in conjunction with the rapidly destructive nature of this disease.

It will be noticed that the bacteriological aspect of this subject has received little or no attention, as this part of the subject requires separate treatment.

The former class of endocardial inflammations, or the simple acute type, are not directly bacterial in origin, as is the malignant form, but appear to take origin in some toxic condition of the system, which of course is secondary to a bacterial invasion of the system, thus producing the disease that precedes and is often spoken of as the cause of the endo- and pericardial inflammation. By some it is claimed that the endocardial lesion is always the result of the direct action of the bacteria on the endocardium. This, however, needs further confirmation before it can be accepted as the only method for exciting an inflammation in the endocardium. The so-called nonbacterial lesion may be both acute and chronic, at least so far as duration is concerned. In fact every acute process if not speedily terminated by complete recovery becomes chronic in character.

To take up all the changes that may and do occur in the heart, in the circulatory apparatus, and throughout all the organs of the body in consequence of the pathological changes in the endo- and pericardium, is beyond the scope of this paper, which is limited to the pathology and treatment of the lesions of these two membranes.

Treatment is described usually under three headings: First, prevention; second, the management of the acute condition, and third, the treatment of the chronic stage or the after effects. The latter can hardly be spoken of from a pathological standpoint as treatment applied to peri- and endocarditis. It is rather the treatment of the secondary lesions that have been developed from an impairment in the functions of these two membranes. Hence, they will not be considered in this paper.

In a similar manner the preventive treatment is in a large measure a doubtful quantity, for we are not absolutely certain as to our etiological factors and the *modus operandi* of their action in producing these endo- and pericardial lesions. We do know that these membranes are the most likely to become inflamed in connection with the condition known as rheumatism, with the infectious diseases, with "Bright's disease" (so-called), and with syphilis. From these facts we are apt to say that these diseases are the causes of the inflammations of these membranes. Hence it becomes us to exert our best therapeutic skill when dealing with tnese diseases, that their duration may be as short as possible and their intensity reduced to the minimum. The main object being to aid the system in every possible manner to rid itself as rapidly as possible of the toxic products that are keeping up the symptoms; in short, to shorten the duration and decrease the intensity of the disease as much as possible. This can be accomplished in an endless varietv of ways, depending upon the inclinations of the individual practitioner. The main thing, however, is the dietetic and hygienic management of the case. The diet should be the most highly nutritious, and require the least expenditure of the digestive energy for its digestion and assimilation. The hygienic surroundings should be of the best, plenty of pure air and ventilation. Next the secretory and excretory organs should be augmented in their action by such drugs as will increase their physiological activity when sluggish, as they always are when the system is under the influence of a toxic infection. In this manner the general damage to the animal economy will be reduced to the lowest point and the liability to the development of an endo- and pericardial inflammation reduced to the smallest possibility.

In the treatment of the active inflammations of the endo- and pericardial membranes absolute rest in bed is the first desideratum. This should be prolonged for a considerable period after the more acute symptoms have subsided, if we are to secure the best results and prevent the establishment of a chronic lesion.

Locally, for the relief of the pain and the tachycardia which are the two most urgent symptoms in the acute inflammations, heat or cold applied directly over the pericardial region will in many instances give prompt and almost perfect relief. In some instances cold, in the form of an ice-bag, gives the best results; in other cases heat works the best. In some a fly-blister mav be required. All three methods act, in all probability, reflexly through the central nervous system, thus causing a change in the circulatory activity in the inflamed endo- or pericardial membrane, by which the local pressure upon the nerve-endings distributed to the membranes is relieved. Outside of these measures there is little that can be done locally or directly to modify the pathological processes. Here, as in all other inflammations, the same general rules that are applicable to the treatment of the disease with which these inflammations are associated, hold true with equal force.

The advisability or nonadvisability of tapping the pericardium, is an interesting question, and one in which there is, as yet, no established rule of procedure. If the heart's action is positively embarrassed by the pressure of the fluid contained in the pericardial sac it would seem that only one opinion could be held, and that would be to relieve the pressure upon the heart at once by aspiration. In like manner, when the inflammatory effusion persists and resists all forms of treatment, judging from the satisfactory results obtained in connection with similar conditions in the pleural sac, the day may not be far distant when the pericardium will be more frequently aspirated successfully. True aspiration of the pleural and pericardial sac is an entirely different problem from a practical and physiological standpoint, even though the pathological problem is almost identical. The former sac can be aspirated easily and successfully, while in the latter it will always be fraught with more or less danger to life.

SOME NOTES ON TRICUSPID DISEASES.

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SERIOUS affections of the tricuspid are comparatively rare and with the exception of pulmonary valve diseases, are the most uncommon. They are still more rarely single. Gibson, however, maintains that tricuspid insufficiency is the most common of valvular diseases, but Sperling from 300 autopsies makes the incidence 26 in 100 in combined lesions, and three out of 200 in single lesions. In 44 cases of valve disease as shown by postmortems, I find the incidence 12, or 27 per cent., while I have observed no single cases. Tricuspid insufficiency is usually relative and due to many causes, cardiac and extra-cardiac.

Organic lesions of the tricuspid valve due to endocarditis or atheroma are usually consecutive to mitral or aortic diseases, or general arteriosclerosis. Insufficiency and stenosis are the two forms recognized. Tricuspid insufficiency, however, is the most commonly occurring affection and the number of recorded instances must easily run up into the thousands, for in Guy's Hospital alone 405 have been recorded. These figures are in striking contrast to the published cases of tricuspid stenosis, which in 1897, according to Herrick[1] had only reached 154. So that although tricuspid insufficiency is comparatively rare, it is as common, as compared with stenosis, as the latter is rare.

Tricuspid insufficiency may be congenital or acquired; organic or relative. Ordinarily we see the relative (acquired) form, which is due to stretching of the valves from dilatation of the right ventricle consecutive to chronic affections of the lungs, or enlargement of the heart, whether from fatty changes or any other form of hypertrophy; perhaps from adherent pericardium. But there are other causes. In one of my cases the tricuspid was apparently dilated from pressure on the right auricle by an aneurism of the ascending arch, and the insufficiency was discovered during life. Tricuspid insufficiency is also a legitimate sequel to organic diseases of the left heart, and it may occur in the last stages of all these diseases. The preponderance of the relative variety over the organic is well shown in the record of the 405 Guy's Hospital cases already referred to, where 394, or about 97 per cent. were classed as relative. My tables make it about 90 per cent.

The question of insufficiency, however, has been disputed, even at the postmortem table, some holding that perfect competency is uncommon, because in applying the water test there will often be a little oozing through the valve. Such fine distinctions, however, have little practical value, because a slight oozing is not recognizable during life by any ordinary symptoms, and may be a temporary affair and of slight importance. In fact this minor degree of insufficiency may be due to faulty technic on the part of the operator, who fails to hold the organ squarely in his hand while applying the test. Practically, unless a good-sized stream of water can be passed through the valve when the organ is held properly in position, it should be regarded as competent. Besides the ring of the valve is well supplied with smooth muscle fibers, and the somewhat relaxed condition sometimes found at autopsies may be due to the general muscular relaxation which has occurred in the last hours of life or even after death.

Organic insufficiency is almost always due to endocarditis, and is a late manifestation of the general implication of the valves, which by preference first attacks the mitral and then the aortic.

Relative insufficiency is simply the result of physiological laws. When for any cause there is obstruction, or stasis, or slowing in the pulmonary veins due either to chronic pulmonary disease or to disease of the left heart, or pericardium, causing engorgement of the lungs with venous blood, the current of blood passing through the pulmonary artery finds an obstacle ahead of it, and the right heart dilates, and then hypertrophies in order to force the blood into the lungs. But this dilatation which takes place has stretched the soft muscular substance of the valvular ring, and caused insufficiency. And yet this relaxation may, after a time, be overcome by the general hypertrophy. But later, when the right ventricle begins to tire and contract irregularly from weariness, or degeneration of its fibers, the muscular tissue of the ring will also participate in the degeneration and again become incompetent. And this is one of the common incidents of heart failure in the last stages of valvular disease.

In other enlargements of the heart, as in fatty deposition, and in chronic fibrous nephritis, a certain amount of enlargement of the elements of the valve may take place and even keep pace with the enlargement of the heart walls; for it is known that in valvular diseases, even the leaflets sometimes enlarge, in order to close the orifice which they are intended to protect. If, however, there has been any deposit in the substance of the valve of a fibrous nature, contraction rather than expansion must take place.

The heart is large in organic valvular disease but may be small in the relative variety; especially in pulmonary tuberculosis, or other wasting diseases of the lungs.

As soon as tricuspid insufficiency has become established, a column of blood is forced through the tricuspid valve into the right auricle, which also dilates, and later may hypertrophy, but the systolic action of the right ventricle, acting on the blood contained in the right auricle communicates its impact to the systemic veins, dilating them, provided the dilatation reaches such a degree that the venous valves are no longer competent. And so the blood in the veins pulsates. This phenomenon, called venous pulsation, is best seen in the veins of the right side, because these veins are in the direct line of the blood current as propelled through the insufficient tricuspid. And as the pulsation is specially well seen in the jugular it is called jugular pulsation. The internal and external carotids also pulsate under similar circumstances, but this phenomenon is not so easily seen as in the jugulars. For the superior vena cava and the innominate veins have no valves, so that no bar to the backward wave is felt until they have been passed. But at the right sternoclavicular articulation there is a valve in the jugular veins, which resists the wave, and in fact it dilates below the valve, which is called the jugular bulb, where it is expanded into a rounded body, which may be seen or felt. In many instances of tricuspid insufficiency the backward wave does not progress beyond this point. The veins are simply filled. But if this valve gives way, then the wave is propagated onward into the external jugulars and subclavians, and may mount into the face.

Distinct pulsation in these cervical veins is, therefore, an important sign, and yet it is not pathognomonic. And one must always distinguish between this true venous pulsation, and a mere undulation of the current in the veins which occurs apart from tricuspid disease—the false venous pulse.

True jugular pulsation is best determined by pressing down the column of blood in the cervical veins, when the impulse will be found before it, not behind it. Compression of the carotids cannot be accomplished without using considerable force, so we are not likely to confound one with the other. To get the bulb of the jugular vein, the patient should cough, when it becomes distinct.

A sign that has been given by Pasteur[2] is distention of the veins of the neck with or without pulsation when the liver is compressed by the two hands. This action slows the blood in the inferior vena cava and causes increased tension in the superior vena cava and, so in the cervical veins. In my cases, however, the venous pulse was not noted as a prominent symptom.

Stasis in the pulmonary veins of the lungs produces cyanosis and dyspnea; in the systematic veins edema and albuminuria.

The degree of stretching possible in a case of relative insufficiency was well shown in one of my cases where the tricuspid admitted seven fingers while ordinarily it only admits two. In average cases of insufficiency it will admit three to four fingers.

In the comparatively rare form of insufficiency, the organic, the valves, its ring, and supporting structures become infiltrated, thickened, distorted and perhaps contracted; for stenosis presupposes insufficiency. And yet if the stenosis is only in the ring, narrowing may occur without insufficiency, as happened in one of my cases of aortic stenosis. Practically then, in organic tricuspid insufficiency there may or may not be dilatation of the outlet. Atheroma rarely attacks the tricuspid valve.

One of the first symptoms is cyanosis. This is at first slight but may become extreme. Associated with it is more or less dyspnea, depending chiefly on the grade of venous stagnation in the lungs. Edema of the lungs is also more or less common and for a like reason there is edema of the lower extremities, first seen in the feet and then slowly rising towards the trunk. When the liver and kidneys become indurated we may expect ascites and albuminuria. One of the most prominent and early symptoms is the venous pulse that has been described.

Another sign is epigastric pulsation, but it is only appreciable when the cardiac systole is forcible. The radial pulse is usually small, soft and irregular and is apt to be rapid. A thrill is of rare occurrence. When it is felt it is probably due to an associated mitral or aortic disease.

The most characteristic sign of tricuspid insufficiency is the systolic murmur over the tricuspid area. It should be heard with greatest intensity over the lower half of the sternum, at the root of or over the ensiform cartilage (the nearest point to the tricuspid) to the right of the median line; occasionally as far as the right axilla or to the left of the sternum at the left fifth costosternal junction (Cabot) or just above it. But it should not be propagated any considerable distance to the left. The murmur is usually soft and faint. Exceptionally it is rough and harsh.

The second pulmonary tone so far as has been noted is weak, because a comparatively small amount of blood is propelled into the pulmonary artery. Doubtless in a very large number of these cases there has at some time been an accentuation of the second sound, owing to the accompanying mitral disease, but on the failure of the tricuspid this symptom disappears, and the weakness of the second pulmonary sound is therefore an important sign as indicating an advance in the general valvular disease. This symptom, however, is one too which too little attention has been paid.

Undoubtedly tricuspid insufficiency produces at first dilatation and then hypertrophy of the right auricle, and this is noticeable in some cases, but chiefly at the level of the right auricle. The heart in its totality is not enlarged, when the insufficiency has been of short duration.

In the heart failure which is so frequent an event in tricuspid insufficiency, one sees the facial discoloration, the wild expression, the projecting eyes. The patient leans forward, as this position is the most favorable for respiration; but he gasps for breath owing to the stagnation of blood in the lungs. The veins stand out in the neck. He can hardly speak and only in monosyllables. The radial pulse is weak and intermittent. The heart's action is tumultuous.

And yet tricuspid insufficiency is seldom recognized during life even under favorable circumstances. In 29 cases proved by autopsies at the Massachusetts General Hospital but five, or 17 per cent., were recognized during life. In 10 cases from my postmortem records the diagnosis was made in three, or 30 per cent. But the reasons are threefold. By some the diagnosis may be regarded as a refinement of comparatively little importance, in the presence of other conditions more apparent and even more immediately serious to the individual.

The most distinctive sign, as I have said, is a systolic murmur over the lower half of the sternum, and ensiform cartilage, the most common center of greatest intensity being (according to my returns) the fourth left intercostal space close to the sternal margin. At times the greatest intensity is as low as the fifth left intercostal space, close to the sternum, and the corresponding area on the right side; sometimes as much as an inch to the right of these points; so that on the whole this area is somewhat broader on the right side than on the left. Occasionally the murmur may be carried to the right axilla, but it is seldom carried much to the left of the sternum. But as the tricuspid is a large and rather indeterminate area, as compared with the mitral which is smaller and overlaps it, it is essential for purposes of diagnosis that the two distinctive sounds or murmurs in these two areas should be appreciably different in character whether as to pitch, quality or duration; and the propagation of the murmurs should be in different directions.

Epigastric pulsation is the next most important sign. It does not occur in simple mitral or aortic disease; but we may remember that tricuspid disease may be associated with organic mitral disease in 20 to 25 per cent. and with organic aortic disease in 15 to 17 per cent. It may, however, be absent.

Faintness of the second pulmonary sound is also important, especially if previously there has been accentuation of it.

The jugular pulse, however, once thought to be pathognomonic, is not so regarded now. It is seen in other conditions. It occurred in one of my cases of aortic insufficiency, without tricuspid disease. Simple fulness of the jugulars is, however, a noteworthy sign. Increase in the transverse dulness of the heart is not a reliable sign. It may occur or not. It may not exist in wasting pulmonary diseases.

The tricuspid murmur may also be mistaken for the murmur of aortic stenosis or the latter may mask the former, when it is propagated backwards, as it sometimes is towards the apex. However, the diagnosis of aortic stenosis should be established by the propagation of the murmur up the great vessels.

Simple thickening of the tricuspid without roughness, like simple oozing, gives no sign.

In general the prognosis is bad. There are cases, however, in which heart stimulants will sustain the flagging heart and carry the patient into a region of comparative safety. In fact successive attacks may be mastered in this way, but the danger is always near at hand. And yet the prognosis is not so bad in the relative variety as in the organic. For the latter presupposes implications of other valves. When there is albuminuria and scanty urine the prognosis is certain to be worse.

Case I.—Mitral stenosis: pulmonary, aortic and tricuspid insufficiency. A., twenty-six years old, single, was admitted to hospital September 18, 1880. Twelve years before admission the patient had a severe attack of rheumatism, and for about a year more or less palpitation and dyspnea. On physical examination marked pulsation was noted in the epigastrium. Murmur with first sound at apex not heard behind or in axilla. Want of synchronism between the two radials. Hypertrophy of heart. Cyanosis, nausea and scanty urine. The dyspnea continued and with it marked pulsation in the vessels of the neck. About five weeks after admission a "purring thrill" was noted in the fifth intercostal space one and a half inches below the nipple, with some recession of the soft parts, more distinct during inspiration. Patient developed orthopnea and died in a uremic convulsion.

The autopsy showed general anasarca. Heart weighed 16 oz. Mitral calcerous; only admits of index finger. Aortic slightly insufficient. Pulmonary insufficient. Tricuspid admits tips of four fingers. Right ventricle hypertrophied. Walls of left ventricle thinned. Fibrous phthisis. Edema of the lungs. Nutmeg liver. In this case the "purring thrill" of mitral stenosis had been noted, as it was the predominating lesion.

Tricuspid obstruction or stenosis, for they both appear to be synonymous, is one of the most uncommon forms of valvular disease. In 1881 Fenwick[3] had only been able to collect 46 cases; Pitt of London in *Albutt's System* (Vol. VII, p. 25) only 87 cases during a period of 26 years, and Herrick of Chicago[4] 154 cases up to 1897. Since that date, however, some more cases have been published, bringing the total up, according to my reckoning, to 162. These figures include two by Whyte[5]; one by Devic and Teyssier[6]; three from the records of the Path. Soc. of Phil., 1898, Vol. XVIII, pp. 132, 181 and 196 by Packard, Steele and McCarthy; one by Chadbourne,[7] and one by Sir George Duffey.[8] Total addition 8; grand total 162.

But tricuspid obstruction must not be considered as an independent disease. It is almost of necessity associated with tricuspid insufficiency, just as any valvular stenosis implies insufficiency. In fact so far as I know there has never been a case of stenosis without insufficiency unless it is one reported by Duroziez, the details of which I have not been able to obtain. And in only two cases (the one above alluded to and that of Devic and Teyssier) was there no accompanying mitral stenosis. Practically, therefore, we may say that mitral stenosis is a constant attendant in tricuspid stenosis, and as the mitral disease is the older the tricuspid may be regarded as a complication of the former. It is a very serious one.

The former idea that tricuspid stenosis was a congenital condition has largely been abandoned, certainly in post-fetal cases, because the evidences at postmortem of its being last in a chain of circumstances are pretty positive, while the date of the first of the events (which so far as the valves are concerned is mitral disease) can be shown with considerable accuracy, the exceptions to this rule being so rare that they can practically be excluded.

There is of course such a thing as congenital stenosis which occurs usually, if not always, together with other congenital malformations of the heart. But in these cases life is rarely much prolonged after birth, so that, as in aortic stenosis, these congenital forms are almost never seen.

A feature of great diagnostic importance in tricuspid stenosis is that the great majority of the sufferers are women. In Leubet's 101 cases published in his Thèse de Paris, 1888 (as quoted by Whittaker), 80 were women, so that the proportion of women to men was about four to one. In Fenwick's 46 cases of which 41 were women the ratio of women to men was about nine to one. In 12 cases which I have collected 10 were women or five to one. So that the preponderance in favor of women is well shown, though the reason is not clear. However, whatever arguments tend to show that mitral disease is by preference a feminine lesion should apply here.

Fenwick found that the average age at death was between thirty-one and thirty-six. In my collected cases the average fell in the thirties. But very few survive the forties and a less number the fifties.

It is generally accepted that rheumatism is the most frequent causative factor. Fenwick found it in 50 per cent.; my figures in 10 cases accord with this ratio. In half of them we have to look for the cause in those influences that govern mitral diseases.

The heart is always moderately enlarged, but there does not appear to be much enlargement of the right ventricle; indeed it has sometimes been described as small. But the right auricle is usually dilated and sometimes hypertrophied, its walls showing manifest thickening. In tricuspid stenosis, coming as it does as the last link in the chain of valve events, there is not apt to be the marked organic changes seen in mitral stenosis. We usually find merely an agglutination of the segments, causing a funnel-shaped opening. Ordinarily it should admit two to three fingers. But in stenosis it may admit only one, or the tip of a finger. The substance of the heart must by this time have degenerated also, and we find induration of the lungs, spleen and kidneys, with the nutmeg liver.

There are symptoms in abundance, but rarely enough or sufficiently distinctive to warrant a diagnosis.

This disease like all other valvular diseases advances insidiously.

The patient will complain of palpitation. In one-half of the cases there is cyanosis (Pitt) and it is apt to be extreme, while either a fulness or pulsation in the jugular veins may be observable. And with it necessarily there will be dyspnea, and perhaps orthopnea, either of them severe. In 75 per cent. of the cases, according to Colbeck, there is albuminuria or dropsy. On palpitation there may be a presystolic thrill, and yet the thrill can be due to a mitral stenosis. In the epigastrium there will be pulsation at times from enlarged liver (50 per cent., says Colbeck), and the force of the heart's impulse will be marked. The presystolic or diastolic murmur in the tricuspid area (which according to English ideas means "over the fourth and fifth spaces to the left of the sternum") should be heard and was heard in five out of seven of Colbeck's cases, though at irregular intervals. Some locate the murmur over the fifth or sixth right cartilage or over the ensiform; others again over the lower half of the sternum and as much as an inch to the left of it. Others again at the root of the ensiform cartilage or to the right of it. That there is some kind of a bruit was noted in the tricuspid area in 20 only of Fenwick's 32 cases. It should differ in pitch, quality, and duration from the associated mitral murmur, and this was noted in Shattuck's case where the diagnosis was made intra vitam.[9] But in about one-quarter of the cases no bruit has been detected. Some have found the bruit in only one case out of eight. In about one-quarter of the cases also there was aortic stenosis. Mental confusion or hebetude has been noticed.

Thus far the diagnosis appears to have been made only in six instances (those of Colbeck and Shattuck) out of the 162 which I have alluded to, but of them it may also be said that many were not examined thoroughly because there was no opportunity to do so; and second, in the face of the manifest mitral and perhaps aortic lesions, no special interest was taken in those of the tricuspid. And owing to the inconstant character of the murmur, and its usually entire absence, it is not so strange that the diagnosis has been seldom made. Indeed for all time this lesion will be apt to escape notice, if we are to depend on specific auscultatory symptoms.

More constant than those as regular attendants are: (1) A co-existing mitral stenosis; (2) an enlarged and dilated right auricle; (3) palpitation, cyanosis, dyspnea, and edema; (4) the epigastric pulse, and (5) a previous history of rheumatism.

If then with these symptoms in a woman, under forty years, with a diastolic murmur in the tricuspid area, where the pitch, quality or other characters distinguish it from the mitral murmur, it will be safe to make the diagnosis of tricuspid stenosis.

The prognosis is worse than in any other form of valvular disease.

In congenital cases they seldom live more than a few days. In acquired cases much depends on the condition of life, however. A tricuspid lesion that would prove rapidly fatal in a working man may be maintained a fairly long time by a person in easy circumstances. Pregnancy, however, in women is a dangerous epoch.

In general the louder the murmur the less the danger. With considerable stenosis there is apt to be a mild bruit. Though patients rarely reach the age of forty years, in the case that follows seventy was reached.

Case II.—Mitral and tricuspid obstruction with insufficiency: Pulmonary embolism: Pleurisy with effusion.

L., seventy years old, was admitted to hospital Jan. 3, 1881. On admission the patient stated that up to a week before admission he regarded himself as well. Then he suddenly developed dyspnea. Slight cough and edema of legs.

On physical examination an occasional squeak was heard in the right parasternal line in the third interspace. Patient's sputum streaked with blood. Jugulars enlarged, almost pulsating. Heart sounds at first indistinct. Cardiac dilatation. Impulse diffuse. Systolic murmur loudest over ensiform cartilage. Tubular breathing. Pleuritic effusion. Retraction of soft parts at third left interspace with inspiration.

At the autopsy the right pleural cavity was found full of serum and the left nearly full. Infarctions of lung. Heart dilated and weighing 23 oz. Aortic and pulmonary normal. Right cusp of mitral thickened and bound down, orifice admitting seven fingers. Valves of tricuspid thickened and restricted (stenosis).

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EMBOLISM OF THE MESENTERIC ARTERY.*

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Embolism of the mesenteric arteries is of such rare occurrence that each case seems worthy of report. The following case is therefore brought to your notice:

The patient was a young man, thirty-four years old, with a decided alcoholic habit. He came home at one o'clock in the morning from an acute alcoholic spree which had lasted four days. At 4 A. M. he was awakened by severe general pain in the abdomen, not localized. There was no vomiting or nausea at this time. Three hours later he was called out and as the pain still continued to be severe, he took a quarter of a grain of morphine hypodermatically and went about his work. On returning home an hour later, the pain having increased, he took a large saline cathartic. Marked abdominal distention was noticeable at this time. During the day the pain continued constant, although there were periods of intense exacerbation. The temperature was 90° F., the pulse 100 during the entire day. At intervals cathartics and high enemata were taken without result, the water returning but slightly discolored. At 10 P. M. the patient was first seen by me and half an hour later by Dr. W. B. Coley; at that time he presented the following picture: A large, stout man weighing about 220 pounds, with a very anxious expression and evidently in intense pain as the beads of perspiration on his forehead testified. His temperature was 98° F., pulse 100. His lungs were normal. Heart, slightly enlarged to the left with the first sound at the apex blunt and exaggerated, the second sound at the base slightly increased; no murmurs were present. The liver dulness beginning at the fourth space, at the lower edge was not determinable. The abdomen was moderately distended, generally tympanitic and equally and generally tender on pressure, though not markedly so. There was a slight prominence and rigidity of the recti muscles in the epigastrium with also a slight resistance on pressure and an indefinite sense of tumefaction over this area. There was no nausea nor vomiting at this time nor had there been during the day. This patient also gave the history of five years previously having had recurrent attacks of appendicitis which had ceased without operation. There was no localized tenderness in the iliac fossa. The patient complained that every capillary in his abdomen throbbed. There was no tenesmus and no prostration. A high enema of glycerine, four ounces, and a pint of warm water was given which brought away a little gas and a small amount of fecal matter. At this time the patient showed so little prostration that he was able to walk to the toilet unassisted.

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* Read before the Society of Alumni of Bellevue Hospital, April, 1902.

The diagnosis of acute intestinal obstruction was made at this time, the cause for which it was impossible to determine. At 8 A. M. the next day the patient's condition was about the same; temperature still normal, pulse 100; the abdominal distention had slightly increased and the prostration was noticeable. Further attempts during the night to move the bowels by calomel and high enemata had been without result.

Thinking an operation would be necessary the patient was removed to a private hospital. Up to this time there had been almost no secretion of urine; the small amount passed was high-colored, concentrated and contained blood. At 1 o'clock P. M., Dr. W. T. Bull was called in consultation and frankly said he was unable to make a diagnosis, but thought that some form of obturation was most probable. Toward evening the pain increased greatly in intensity and there was nausea with occasional vomiting of froth and bile. The abdominal distention was more marked; the pulse was 106, temperature 99° F. At midnight the condition of the patient was such that an operation was deemed necessary, but it was thought advisable to wait till morning. At eight o'clock A. M. it was found that the vomiting had become slightly fecal; the temperature was 100° F., the pulse 112, the distention was greatly increased and was very marked. The prostration was also extreme though the patient was perfectly conscious. Some seven ounces of urine had been passed during the night. The diagnosis was still in doubt.

Operation at 8:30 A. M., February —, 1902. Ether anesthesia. With the assistance of Dr. William T. Bull and Dr. John B. Walker and Dr. Preston Satterthwaite a median incision was made from the ensiform cartilage to the umbilicus. The distention of the abdomen was so great that it was almost impossible to keep the intestines within the abdominal cavity. A large amount of bloody fluid poured out of the incision. The omentum in the epigastric region presented a very peculiar appearance. It was considerably thickened, matted together by recent adhesions and studded with small embolic infarctions. A careful examination was made of the entire abdominal cavity, but at first nothing could be found to account for the intestinal obstruction. It was soon discovered that a large fold of mesentery of the small intestine was greatly thickened, in places being one inch to an inch and a half in thickness. This thickened portion was as large as two hands and supplied several feet of intestine.

The diagnosis of thrombosis of the mesenteric vessels was made, but as the intense congestion of the entire intestine with the great distention showed that peritonitis had already begun to develop, no further operative interference was attempted. The large amount of mesentery involved absolutely contra-indicated any radical operation, even had an earlier operation been performed.

The wound was closed as quickly as the distention permitted and the patient returned to his bed in fair condition. He suffered much from shock, and although he recovered consciousness in a short time, his pulse became rapid and very feeble and he died at 4 P. M., about seven hours after operation.

REPORT OF THE POSTMORTEM EXAMINATION.

BY DR. HARLOW BROOKS.

The body is that of a large, well formed but rather obese male. Rigor mortis is not present and the body is still warm. The skin over the entire body is much cyanosed and in places shows petechial blotches. The pupils are widely dilated; the skin of the face is bluish. There is a recent surgical wound extending almost from just below the ensiform cartilage to the umbilicus. This wound is closed and several gauze drains lead from the cavity. There has been a slight escape of somewhat blood-stained serum from the drains just mentioned.

On opening the peritoneal cavity about 300 cc. of thick, creamy pus escapes and the entire peritoneum, both parietal and visceral, is found to be covered with a thin exudate of thick fibrinous pus. The peritoneal capillaries are much injected, both on the walls and over the intestines. The entire gut is distended with gas, particularly the cecum, but the rectum and sigmoid are empty and not much distended.

The omentum is short, very thick and literally studded with small, spherical, injected, gangrenous nodules which appear not unlike small Delaware grapes; evidently they represent minute embolisms of the omental vessels. The omentum is much matted together, apparently from previous disease. The spleen is displaced upward seemingly by the distention of the stomach, so that it is found on the superior surface of the stomach near the esophageal opening. It is small, soft and moderately congested. The stomach is greatly distended with gas. The mucosa shows numerous old healed ulcerations, mostly of small size, and of long standing. The mucous membrane shows further an extensive chronic gastritis. The appendix is sharply folded upon itself, surrounded by edematous adipose and old adhesions; it is about 2 cm. long and has evidently ruptured with complete loss of the distal two-thirds. There are no evidences of recent inflammation, and clearly the inflammation has always been well localized by fibrous adhesions. The entire colon is greatly distended with gas. The mucosa is congested and in the ascending and transverse portions there is an abundant secretion of mucus. The sigmoid and rectum were washed clean.

The mucous membrane of the small intestine, as a whole, is very much congested, but in places it is anemic. There are a few minute emboli of the submucous vessels and more frequent and large lesions of the same character on the peritoneal surface of the small gut, resulting in small gangrenous patches. There are several surgical wounds of the gut, which have been closed with silk; apparently these represent small rents which have been closed surgically.

The mesentery of the lower folds of the ileum shows a very marked congestion and injection with the presence, in the mesenteric vessels, of minute emboli; this process becomes much more extensive in the upper folds of the mesentery, the emboli being larger and more frequent. The mesenteric vessels, as a whole, are much thickened and show a very markedly atheromatous intima; they are as large and heavy as the radial artery is ordinarily.

The pancreas is riddled with fat infiltration. The artery is about the caliber of the axillary artery; the intima is enormously thickened. The pancreatic duct is gangrenous in part, apparently from thrombosis of its nutritive artery. There is an extensive infiltration of the pancreatic interstitium, apparently largely inflammatory.

The liver is enlarged about one-half its volume. The capsule is smooth. The parenchyma shows an almost complete fatty degeneration in places, but in other areas it is less marked. There is advanced chronic congestion. The gall bladder is distended with 150 cc. of fluid, greenish bile. The duct is open throughout. The kidneys are surrounded by an enormous amount of loose adipose. The suprarenal capsules show almost absolute fatty degeneration of the cortical portions. The retroperitoneal deposit of fat is very abundant. The cortex of the kidneys is thick but very irregular. The blood vessels are much injected throughout. The parenchyma is swollen, granular and shows very marked fatty degeneration. The capsules are slightly adherent and there is a general connective tissue increase, particularly about the blood vessels.

The heart is large; the left ventricle is very firmly contracted, apparently from the administration of strychnine, for the heart muscle itself shows a very extensive fatty degeneration. The right auricle contains a preformed clot, apparently of two or three day's standing, as it shows beginning organization and is covered over with small granulomatous masses. It is firmly adherent to the superior external wall of the cavity. The mass of clot is probably the origin of the multiple emboli described. The arch of the aorta is of small caliber but it is extensively atheromatous, the atheroma being *"en plaque."* The coronaries show most extensive atheroma of the same sort, almost obliterating the lumen from place to place. This process is evidently in the proliferating stage. The aortic segments are thin, as though from great back pressure. Otherwise the heart valves are functionally normal.

The right pleural cavity is obliterated by subacute adhesions. The posterior portions of both lungs show extreme congestion with minute emboli in the pulmonary arteries. There are a few tiny, recent infarctions of the peripheral portions of the lungs.

The prostate gland is not enlarged. The seminal vesicles and the bladder seem to be in natural condition.

Cause of Death.—Multiple infarctions of mesenteric and pulmonary arteries, following thrombosis of the right auricle. Complicated by marked general atheroma and by extreme fatty degeneration of all visceral parenchyma, notably of the heart muscle, all probably resulting from alcoholic toxemia. Chronic appendicitis.

Miscroscopical Examination.—Heart. — The muscle fibers are swollen, cross striation is indistinct and entirely absent in some of the cells. Fatty degeneration is very marked and almost general. There is but a slight amount of pigment about the nuclei, many of which are dividing or eccentric in form. There is quite a well defined hemorrhagic exudate just beneath the epicardium, which is generally thickened. In many places the interstitium shows recent proliferative changes, particularly where it forms the adventitia of the auricles. The walls of the auricles are much thickened, the change being most pronounced in the sub-endothelial layer of connective tissue.

Blood Clot. The blood clot found in the right auricle shows a distinctly laminated structure, the lower structures of which were most likely formed twenty-four hours or more premortem.

Lung. The lungs show the ordinary changes of hypostatic congestion with atelectasis.

Liver. The parenchymatous cells show very extreme fatty degeneration; they are deeply pigmented as from chronic congestion. The portal capillaries are widely distended and together with the intralobular radicles are much congested. There is considerable maceration of the cells impinging on the last mentioned vessel. The interstitium shows a moderate degree of recent proliferation.

Spleen. There is a hemorrhagic infiltration into and beneath the capsule which is considerably thickened. The entire pulp is much congested, deeply pigmented and the blood vessels show marked acute atheroma. Many of the connective tissue cells, as well as the pulp cells, are very deeply pigmented.

Kidney. The parenchymatous cells are swollen; many are desquamated and they show an extreme degree of fatty degeneration. The blood vessels are acutely injected and small hemorrhagic foci are frequent. The interstitium shows a moderate amount of chronic augmentation with pronounced acute proliferation. The vessels are markedly atheromatous.

Blood Vessels. The walls of the blood vessels are universally thickened; this is particularly true of the branches of the mesenteric arteries in which the subendothelial connective tissue layer is greatly thickened and infiltrated by small round cells. The endothelial coat is generally eroded The internal elastic membrane is unusually well developed in most of the vessels.

Stomach. The mucosa shows extensive superficial congestion and erosion, with frequent areas of infiltration which extend far down into the submucosa. Glandular epithelium, especially the chief cells, is quite generally degenerated. The peritoneal surface shows a recent purulent exudate and the blood vessels are universally injected.

Omentum. Sections through the embolic foci show the surrounding tissue to be the site of extensive blood extravasations of much more severe degree than was apparent on gross examination. The blood vessels show the changes characteristic of embolism. Pronounced atheroma is general and the peritoneal surface is covered by a thin purulent and hemorrhagic exudate.

In view of the comparative rarity of the lesions just reported, the impossibility of making the correct clinical diagnosis until the operation, the hopelessness of the condition found and the confirmation of this by the postmortem findings, it would seem that a brief review of other similar cases would be of interest and may assist some one in some cases, in arriving at a correct diagnosis, followed by an early and successful operation.

Dr. J. W. Elliott,[1] of Boston, in 1894, successfully resected four feet of a gangrenous small intestine. In 1898 Dr. T. E. Gordon,[2] of Dublin, Ireland, also saved his patient after removing two feet of infarcted gut. In neither instance was the diagnosis made before the operation. Dr. Francis S. Watson,[3] of Boston, gives the histories of 27 cases of thrombosis or embolism of the superior mesenteric arteries, and after reviewing these histories concludes: "In about one-sixth of the cases the autopsy showed that the intestinal lesion was sufficiently limited and well defined to allow of a successful resection of that part of the bowel."

In studying closely these cases, one notices that there is a great variability in the symptoms, and further, that there is no apparent ratio between the clinical picture and the extent of the lesion; and still further, that even when the lesion is apparently the same, *e.g.,* total occlusion of the main trunk of the superior mesenteric artery, the clinical picture varies from no abdominal symptoms whatever to that of sudden and violently acute intestinal obstruction. We must realize, therefore, that the clinical symptoms in any given case of embolism of the mesenteric artery or its branches will not give any accurate clue to the extent of the intestinal lesion which an operation or postmortem examination may demonstrate.

The lesions from occlusion of the artery vary, and, as Welch[4] points out, show all gradations between mere venous hyperemia with scattered superficial hemorrhages and complete necrosis and infarction, the controlling factors being doubtless the rapidity and extent of the arterial occlusion and the vigor of the general circulation.

Considering the cases more in detail, we find that the great majority are in patients beyond middle life and many suffering from co-existing diseases, most often cardiac or renal, with atheromatous arteries; a minority, however, are younger than forty years with no serious disease in other organs and the cause of the embolism is not discoverable. While the variability in individual symptoms is noticeable, there seem to be two main types of the clinical picture. The less common is sudden, violent, colicky pain, not localized, with obstipation and vomiting which later becomes fecal. The more common type is sudden, intense colicky pain, not localized, with or without distended abdomen and a diarrhea often bloody, with blood often in the vomitus, a subnormal temperature and great prostration.

Watson considers the only characteristic symptoms to be the combination of the intense, colicky, non-localized pain, bloody diarrhea and subnormal temperature. When vomiting is present and abdominal distention, the diagnosis is strengthened. It is worthy of notice that the pain was localized twice in the epigastrium, once in the right iliac fossa and once in the right hypochondrium, and Welch, in his exhaustive article on the subject, mentions that a tumor has been felt in only three or four of all the cases reported.

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[1] Boston Med. and Surg. Jour., 1894, vol. p. .

[2] British Med. Jour., 1898, vol. p. .

[3] Boston Med. and Surg. Jour., Jan. 1894, p. .

[4] Albutt's System of Medicine.

Considering the differential diagnosis, we must consider volvulus, obstruction from bands, herniæ of all kinds, perforation of gastric and duodenal ulcer and acute pancreatic affections. In considering the differential diagnosis the type of the disease as represented by the case reported, cannot be differentiated from volvulus or obstruction of the intestines due to impaction within the gut. A clinical differentiation before operation or postmortem examination is impossible. From the more common type with bloody diarrhea; strangulations of hernia and obstruction by bands and volvulus are differentiated by the obstipation in these forms of obstruction, and with bands, by the early and persistent vomiting and the incarceration shock; intussusception by its occurrence in 54 per cent. of all cases before 10 years of age, by its greater chance of presenting a tumor (66 per cent.), by the tenesmus and late appearance of abdominal distention and the blood and mucus being much less profuse. The symptoms of acute pancreatic disease are similar to those of embolism, but are limited to the epigastric region and the collapse in this disease is rapid; and while there is not uncommonly blood in the vomitus, there is no bloody diarrhea.

It is interesting to note that a few cases of recovery from occlusion of the mesenteric arteries have been reported, as branches of these arteries have been found occluded with long-standing fibrous plugs. Watson quotes John Chiene's report of a dissecting room subject in which the superior and inferior mesenteric arteries and celiac axis were all occluded at their origins from the aorta by fibrous clots of long standing.

MEDICAL PROGRESS.

MEDICINE.

Narcolepsy.—Attention has recently been called to this condition described first by Gelineau in 1900 as characterized by somnolence of sudden onset and entirely beyond the patient's control, whatever might be his occupation or surroundings. S. I. Zeltner (La Habana Medica, June, 1902) reviews the theories of the few observers who have met with this rare condition, as to its real nature, showing a pretty even division between those who hold it to be a separate pathological entity and those who regard it as a symptom of some other morbid condition; narcolepsy having been associated in many reported cases with a variety of diseases, while in an equal number of instances no pathological state could be discovered which would account for it. The writer refers to four cases in his personal experience, one of which was undoubtedly secondary while the remaining three were attributable to no other morbid condition. The following conclusions are drawn by the author: (1) Sudden invincible sleep may occur as an idiopathic infirmity; (2) as such, it develops suddenly after emotion; the latter being sometimes joyful, but more frequently painful; (3) narcolepsy occurs most frequently in patients whose intellect is not highly developed; (4) it occurs generally in the debilitated, owing to the cerebral depression induced by the causal malady; (5) change of surroundings and manner of living exert a favorable influence upon narcolepsy.

Influence of Massage on Leucocytes.—This subject has lately been experimentally investigated by E. Ekgren (Deut. med. Woch., July 17, 1902). He subjected a number of male patients to general bodily and abdominal massage and studied its effects on the white blood-cells, taking the specimens before and also at definite intervals after treatment. In all cases he found a general increase of leucocytes, especially marked by a greater percentage of multinuclear elements and a correspondingly diminished percentage of mononuclear cells. The increase was noted within 10 minutes after massage was done, became greater in exceptional instances within the succeeding 20 minutes, and then gradually declined. In making this statement the author is not prepared to say whether the increase is actual or is due to a redistribution of the leucocytes in favor of the peripheral circulation, but he is inclined towards the latter view.

Mosquito Work in Havana.—Seldom, if ever, have any more satisfactory reports been made in reference to an attempt to exterminate a dreadful disease, than can be shown by the mortality reports of Havana in regard to yellow fever and malaria during the past year. Since it has been conclusively proven by experiment that these diseases can be communicated in no other way than by the mosquito, their eradication or control depends entirely upon our treatment of this insect. W. C. Gorgas (Med. Rec., July 19, 1902) shows what systematic action has done for Havana and what the possibilities in other localities may be. Yellow fever is carried by the stegomyia mosquitoes, and at the beginning of 1901 determined efforts were made to control this disease; (1) by destroying as far as possible this species of mosquito; (2) by preventing those that escaped from biting yellow-fever patients and thus transmitting the disease, and (3) by endeavoring to kill all that had become infected. The city was divided into sections and an inspector with two laborers was assigned to each section. Every collection of water in the city was required to be kept mosquito-proof and every house was inspected to see that rules were carefully followed. Fines were levied when necessary. In the case of cesspools which could not be properly protected, petroleum was used. Practical experience has shown that when mosquitoes are troublesome in any house, they are almost invariably bred in that house or in those contiguous, and of the stegomyia mosquito this can be positively stated, almost without exception. To prevent mosquitoes from becoming infected by yellow-fever patients every case of this disease was carefully screened and isolated at the public expense and a guard stationed to see that no mosquitoes entered the room. Furthermore, in order to kill all mosquitoes in the neighboring rooms pyrethrum powder was burnt at the rate of one pound to every 1000 cubic feet of air space, and at the end of three hours the mosquitoes were collected and burned to obviate the possibility of resuscitation. The results have been phenomenal. During the past 10 years there has been an average of 462 deaths from yellow fever in Havana, varying from year to year, but never less than 172, which occurred in 1898. During the past year, however, since the above precautions have been observed, there have been but five deaths. The decrease in the deaths from malaria has also been very striking, and undoubtedly the excellent results are directly attributable to the mosquito work.

Neurotrophic Pathogenesis of Gastric Ulcer.—In a paper dealing with this question, A. Testi (La Riforma Medica, July 14 and 15, 1902) advances the theory that neuropathic conditions, notably neurasthenia and hysteria, latent or otherwise, may give rise to trophic lesions in the stomach capable of causing gastric ulcer. From his study of the subject and clinical experience, the author draws the following conclusions: Clinical observation, physiology, and experimental pathology show the intimate relation existing between the nervous system and the functions of the stomach. Central excitation of any kind, and disturbance of stomach function and secretion may be regarded in the light of cause and effect. On the other hand it seems certain that changes in the mucosa, of an infectious, toxic, irritative or traumatic nature do not take on a fatally progressive character if the innervation of the stomach be maintained in a physiological condition; and that excess of hydrochloric acid or gastric juice does not give rise to ulcer by autodigestion of the stomach-wall if the innervation is normal. The mechanism of the nervous origin of gastric ulcer may be considered as a disturbance of trophic equilibrium of the gastric mucosa through which the vitality of its elements is lowered, hence erosions, necrosis, and progressive loss of substance.

Trichinosis.—An interesting account of this rare disease in America is the article by A. K. DRAKE (Jour. of Med. Research, June, 1902). The trichinæ are found in cats, rats, dogs and other flesh-eating animals, and if the trichinous pork is taken into the stomach, the capsules are dissolved, freeing the trichinæ, a single embryo giving rise to from 1500 to 2000, producing gastro-enteritis a few days after ingestion. The young trichinæ find their way presumably by the lymph-stream to the muscles, where they are shortly encapsulated. A myositis is then produced with the well-marked symptoms of pain, swelling, edema and partial paralysis, and the muscles of the larynx and mastication may be involved to an extreme degree, causing difficulty in speaking and swallowing. For some unknown reason the heart muscle alone escapes. Since blood examinations have taken so prominent a place in the diagnosis of many diseases, eosinophilia has been regarded as a diagnostic sign of the disease, but out of four cases observed by the author not one showed an undue proportion. When considering the means of eliminating trichinosis from swine, the suggestion was made that a blood-examination might prove of diagnostic value, but negative results only were obtained. The disease itself may be readily diagnosticated, or, on the other hand, may be very obscure, especially if accompanied by phthisis, or disease in which enteritis or swelling of the extremities may occur. It may thus simulate typhoid fever, muscular rheumatism, or peripheral neuritis, and there may be periodic attacks resembling relapses, explained only by the fact that new crops are liberated by a long hidden embryo.

Test for Beginning Loss of Renal Function.—The great value of separately collecting the urine of the two kidneys and analyzing it for chloride, nitrogen and glucose after phloridzine injections and for reduction of the freezing point, in order to determine the functionating power of each, is becoming more and more evident. Much of importance can also be learned from watching the flow of urine from both ureteral orifices, for sluggish contractions of the ureters are common in pyonephrosis and tumors. F. STRAUS (Münch. med. Woch., July 22, 1902) has discovered a phenomenon which promises to be of great value for the early determination of loss of function on the part of one kidney, and which consists in administering diuretics so as to dilute the urine, and then determining the freezing point separately. If this is found to be below the normal on one side it is safe to assume that some pathological process is taking place there.

A New Sign of Pneumonia in Children.—In genuine croupous pneumonia of children up to 10 years, there is often found an absence of the patellar reflex. This sign, according to M. PFAUNDLER (Münch. med. Woch., July 22, 1902) can frequently be elicited before auscultation or percussion gives evidence of the disease, and it may be of some value in differential diagnosis. In the cases examined the temperature was generally high, but sometimes there was no fever present and occasionally the reflex did not return at once after the crisis. With very young infants the phenomenon could not be observed; in the other patients it seemed to make no difference where the process was located or how much of the lung was involved. Most children with positive sign were strong and well-nourished and were seriously ill with the disease, showing especially cerebral symptoms with the onset, but no variation during the course.

Relation of Tuberculosis to Ear Disease.—In a statistical article, P. OSTMANN (Münch. med Woch., July 22, 1902) finds that there is a close relationship between consumption and deafness, for in tuberculous families just twice as many children were found troubled with ear disease as in the non-tuberculous. Conversely, in those families where otitis abounded consumption was most prevalent, and a severe type of this was often present when a large number of children in a family had trouble with their ears. The conclusions are that tuberculosis predisposes to the development of ear diseases and decides an unfavorable course, the more so the more intense the infection.

Leucocyte Count in the Summer Diarrheas of Children.—Two conditions with which the practitioner is likely under certain circumstances to confuse the simple summer diarrheas of children, namely, typhoid fever and helminthiasis, are characterized by very typical features in the blood-count, namely, leucopenia in the former and eosinophilia in the latter. It is, therefore, extremely important to have data regarding the leucocyte count in the simple diarrheas, if only for purposes of comparison. This desideratum has recently been satisfied by KNOX and WARFIELD (Bul. Johns Hopkins Hosp., July, 1902), who made differential counts in a series of 25 cases. In the first place they were able to confirm the pretty well accepted opinion that the differential count in the blood of normal children under two years of age shows a relative increase in the small mononuclear elements and a decrease in the polymorphonuclears, as compared with the adult. In the summer diarrheas there is usually an increase of the leucocytes, but the count varies within such wide limits that a high or a low leucocytosis cannot be regarded as of diagnostic value. On the other hand, the differential count is of more importance. A relative increase in the polynuclears is an indication of an intoxication with decomposition products in the intestine, or of the toxins of pathological bacteria; the increase is, as a rule, in proportion to the severity of the infection.

Dysentery.—Since 1888, when Widal and Chantemesse published an article on the microbe of epidemic dysentery, they have continued to receive and study specimens of dysentery bacilli from all parts of the world, especially from Tonking, Japan, the Philippines, China, West Indies, the United States, France, Germany, Italy, Egypt and Algeria. They thus find that, no matter what the geographical location, the symptoms or the anatomical changes in the large intestine, the causative factor is this one bacillus. CHANTEMESSE (Bulletin de l'Académie de Médicine, July 21, 1902), therefore, considers that all dysenteries are either amebic or bacillary. Amebic dysentery is sporadic, non-infectious, of slow course, and after a long siege of diarrhea and sometimes constipation, terminates by cure or by death from exhaustion, abscess of the liver or intestinal perforation. The blood of such patients does not agglutinate the dysenteric bacillus. Bacillary dysentery, on the other hand, is epidemic, infectious, and may rapidly prove fatal through its specific virus, or it may become chronic, causing ulcers and thickenings of the large intestine. It sometimes occurs sporadically or as a complication of other maladies, and is caused by the multiplication in the intestinal lumen in the walls of the large intestine, in the mesenteric lymph-nodes, in the spleen and in other organs, of a special bacillus which is agglutinated by the blood of those attacked with the disease. Moreover, men who have ingested this microbe have developed the characteristic dysentery, so its specificity is beyond question.

Epidemic Cerebrospinal Meningitis.—During the course of the epidemic of the cerebrospinal meningitis which broke out on board the Montrose, a British transport conveying Boer prisoners, E. C. FREEMAN (La Sem. Méd., 1902, No. 22) treated three patients with antipyrin in doses of 0.30 to 0.60 grams, repeated three times in 24 hours. In one person, nineteen years old, the temperature, which at the beginning of the attack was 39.4 C., fell in two days under the influence of the medicine to nearly normal, while the pains in the back of the neck and in the head decreased. Nevertheless this youth underwent a recurrence and finally died after having passed during three months through a number of apparent improvements followed by exacerbations. His two other patients, thirty and fifty years old respectively, presented all the characteristic signs of cerebrospinal meningitis, but were completely cured. During this same epidemic this physician saw three other patients whom he treated by the usual method, but who died after a brief course. He thinks his experience may suggest a particular efficacy of antipyrin against cerebrospinal meningitis.

Severe Abdominal Symptoms Ushering in Pneumonia or Pleurisy.—That a pneumonia or a pleurisy may occasionally set in with so markedly pronounced abdominal symptoms as to mislead in the diagnosis at first is not new, but the cases reported by P. HAMPELN (Zeitsch. f. klin. Med., vol. 45, Nos. 5 and 6) are unique in that three resembled at first perforative peritonitis and one intestinal obstruction. In each case operation was seriously considered until the pulmonary symptoms became more pronounced. Occasionally one meets with cases where an intestinal occlusion seems to exist, where pneumonic foci are present in the lungs and where on autopsy no real cause for the obstruction can be found, and yet everything seems to point to the abdomen as the primary seat of the disease. The possibility of a dynamic ileus with secondary involvement of the lungs must here be taken into consideration, especially since more or less consolidation is not rare with intestinal obstruction of any kind. The prominent abdominal symptoms in purely pulmonary conditions are best explained by involvement of the phrenic nerve and the diaphragm and, in accordance with this, the pneumonias always involved the lower lobe.

Trauma and the Pancreas.—Four cases are reported by C. ROOSEN-RUNGE (Zeitsch. f. klin. Med., vol. 45, Nos. 5 and 6) in which trauma induced severe and fatal disease and where on autopsy there was found injury to the pancreas and extense fat necrosis. While the relation between the three is settled beyond a doubt it is often impossible to decide what induced the fat necrosis. Where the injury to the pancreas is extensive it is logical to assume some action of the pancreatic juice on the tissues, but there are many cases where the injury is small and amounts only to a slight hemorrhage into the gland.

Amyloid Disease of Heart and Digestive Tract.—A case of amyloid disease with the rare location in the heart and digestive system, is reported by F. STEINHAUS (Zeitsch. f. klin. Med., vol. 45, Nos. 5 and 6). A strong and healthy person is attacked suddenly with gastro-intestinal derangement and symptoms pointing to loss of compensation and during six months extreme cachexia develops, and finally a copious intestinal hemorrhage proves fatal. On autopsy, extensive amyloid and hyaline infiltrations are found in the myocardium in the form of milary nodules, and in the submucosa of the stomach and the intestines, without any evident cause. The occurrence of both hyaline and amyloid tissue together gives strength to the theory that they are closely allied and though their chemical nature is not yet definitely settled it seems likely hat they represent a firm union of some albuminous substance with chondroitin-sulphuric acid and that they are formed by the intercellular coagulation of some substance derived from the blood. The analysis of the stomach contents suggested carcinoma in that hydrochloric acid was absent and products of fermentation had formed, but the autopsy showed that there was merely a benign stenosis of the pylorus, resulting from the deposition of amyloid substance.

SURGERY.

Prolapsus Recti and Paraffin Injections.—For obstinate recurrent prolapse of the rectum in children of various ages, in which all other moderate means of treatment had failed KAREWSKI of Berlin tried injections of hard paraffin of a melting point of 56 to 58° C. The method in full is first to evacuate the bowels actively for at least two days prior to treatment and then a few hours before to quiet the intestines by giving subnitrate of bismuth injections. The prolapsed bowel is gently and thoroughly disinfected and replaced. The index-finger is inserted just beyond the anus as a guide and then the paraffin is injected just between the skin and the mucosa, through one wound of entrance when practicable, and disposed about the anal orifice as a ring. The results are very favorable and the process rarely needs repetition.

Pulmonary Surgery.—It is only within the last decade that certain pulmonary processes have come into the borderland of medical and surgical treatment. Quincke has stated that surgical interference is more apt to be concerned with suppurative processes involving the parenchyma than with those of the mucosa, as in the latter case the bronchi usually provide an outlet. R. RIEGNER (Deut. med. Woch., July 17, 1902) has classified the appropriate conditions demanding operation as follows: (1) Acute and chronic abscesses; (2) acute and sub-acute gangrene; (3) chronic gangrene; (4) bronchiectases; (5) tuberculosis. In considering surgical interference two questions arise: (1) Is the operation necessary and on what grounds? and (2) How are the indications to be judged? The author summarizes his conclusions as follows: The cases particularly suited for operation are those of acute or subacute pulmonary gangrene. Simple abscesses do not demand surgical interference. In chronic gangrene, bronchiectasis and tuberculous cavities, the chances for a cure are minimized owing to the multiplicity of the foci. The diagnosis of a focus is always required before an operation is practicable. A localized gangrene may often be recognized by the presence of the following signs: A circumscribed area of dulness surrounded by normal pulmonary resonance, the expectoration of numerous bits of lung parenchyma, and the coincidence of the physical signs with an X-ray picture.

Operations for Paralytic Club-Foot.—The present method of correcting paralytic club-foot is first to correct the deformity by reduction and then to restore deficient or lost function by tendon transplantation, usually from the tendon of Achilles to the peroneal muscles. A. SCHANZ of Dresden (C'blatt f. Chir., 1902, No. 28) offers the following points in the treatment of cases in which both of these procedures are admissible: When a club-foot is reduced the various component elements of the deformity correct themselves very well up to that of talipes equinus, which always enters into these deformities more or less and must be corrected by operation which commonly combines lengthening of and transplantation from the tendon of Achilles. Usually both of these elements are necessary for a good result and are commonly carried out at the same sitting. Schanz pleads for the wisdom of doing the work in two sittings. In these club-foot operations as soon as the tendon of Achilles is divided the strongest preventive of eversion of the foot is lost, no matter whether the club-foot is congenital or acquired. He believes that the transplantation should be done first and then after four or five weeks the lengthening done, for this reason and also because a much simpler wound-condition obtains. The transplantation succeeds better when left to itself and when the rest of the tendon by being kept tense remains away from the transplanted portion. After the transplantation has succeeeded the tenotomy should be done and the element of talipes equinus corrected while the transplantation checks inversion. He has found this two-stage method to succeed even in adults.

Local Anesthesia with Cocaine and Adrenal Extract.—If there is one operation of minor surgery in which local anesthesia by cocaine is indicated on account of its habitual convenience and effectiveness it is the avulsion of a tooth. Cocaine, however, has some disadvantages in inflamed tissues, and is not certain in its action in relaxed tissues. One or both of these conditions obtain in dental surgery through periostitis, gingivitis and laxity of the tissues about the tooth. The cause of the failure of cocaine in these instances is probably a too rapid diffusion through the circulation. Efforts have been made to meet this by dissolving it in less readily absorbed menstrua like paraffine oil, oil of sweet almonds, etc. The result of this plan is a perfect anesthesia but occasionally intense after-pains and the formation of various nodes which may persist for months. BATTIER of Kremlin-Bicêtre has made use of the vaso-constricting properties of adrenal extract as an aid to the cocaine for overcoming the causes of the latter's failure. He employs a 1 per cent. solution of cocaine and a 5 per cent. solution of the adrenal extract. He injects first the requisite amount of the cocaine and then that of the adrenal extract solution and finds that the blanching of the tissues by the latter maintains the anesthesia and permits the operation to proceed bloodlessly.

Continence after Total Extirpation of the Rectum.—Rectal cancers are very rarely so situated as to permit total removal and still leave the sphincter ani behind and in perfect or even partial control of the patient. The vast majority of them are so low down as to render sacrifice of the muscles absolutely essential, if the surgeon is to be guided by the chief aim of all operations upon malignant growths; namely, to secure permanent cure or freedom from recurrences for several years. Gersuny's torsion of the bowel often succeeds very well indeed, but has the dangers of gangrene by being made excessive, or of absolute failure by being insufficient. O. WOLFF (C'blatt f. Chir., 1902, No. 28) has found that very good control of the bowel at least for formed feces is obtained by injections of paraffin. These should be made after the wound has progressed well toward healing, say two weeks after the primary procedure. If made before that time gangrene or other interference with the result of the primary operation may ensue.

A Simple Suture Carrier.—In the issue of the Centralblatt für Gynaekologie, 1902, No. 20, Eisenberg described a suture carrier which has already been noticed in these pages. E. KURZ of Florence in the issue No. 28 outlines a similar though simpler apparatus which he has been using for several years. Its parts are detachable and consist of two wings combined as a hollow handle into which the tube or bottle filled with the silk fits and themselves fastened together in a cone into which the needle-points fit. The suture material runs along the needle to its eye and in this manner constantly plays out as needed. Kurz has never published any note of his instrument and does so now only to illustrate how readily similar devices are evolved.

PHYSIOLOGY.

The Strawberry as a Lymphagogue.—The peculiar urticarial manifestations following the ingestion of strawberries in certain people having an idiosyncrasy for this article of diet, are explained by L. B. MENDEL and D. R. HOOKER (Amer. Jour. Physiol., July 1, 1902), on the basis of the lymphagogic action of the active principle of the strawberry. Heidenhain was the first to suggest that the urticaria and diffuse edema seen after the ingestion of crustacea, are to be explained by the fact that the crustacea act as lymphagogues. He had shown that peptone, extract of leeches and crustacea produce this lymphagogic action by stimulating the endothelial cells of the blood capillaries, which thus exert a secretory function resulting in the formation of lymph. Sugar and inorganic salts also cause an active lymphatic flow. That the peculiar action of strawberries is not due to the sugar and inorganic salts contained in them, is to be explained by the fact that the latter give rise to a flow which is less rich in dissolved substance than the lymph normally flowing from the duct of the same animal, while the strawberry gives rise to a lymph richer in solids than the corresponding normal lymph, and exerts no such diuretic action as do sugar and the inorganic salts referred to.

The Properties of the Arterial and Venous Walls.—Many important contributions to the knowledge of the vascular system are made by J. A. MCWILLIAM (Proc. Royal Soc., June 19, 1902). Not the least of these is that which describes a postmortem contraction of the arteries. Excised shortly after death, an artery may be strongly and persistently contracted long before rigor mortis has appeared in the heart and skeletal muscles, and indeed while these muscles are obviously living. The causes of this contraction are mechanical stimulation, *e. g.*, cutting, etc., and exposure to air, while cooling to a few degrees above 0° C. favors it. It is well marked in all the arteries. It is associated with an increase in the length of the artery. The duration of this postmortem contraction varies. In the horse and ox it lasts for several days, but in a warm chamber the arteries relax in twenty-four hours. Immersion in olive oil prolongs the postmortem contraction. There is a persistence of the excitability of the arterial wall after death, that lasts for many hours, frequently for two or three days. Exposure to chloroform vapor causes powerful contraction. Suprarenal extract has a marked influence in inducing arterial contraction at relatively long intervals after death, as twenty-four to forty-eight hours. Freezing prevents postmortem contraction. After this has occurred, it may be removed by freezing, immersion in a solution of sulphocyanide of potassium, which leads to complete relaxation and permanent loss of excitability and contractility, and by strong ammonia vapor. Contraction may also be removed by heating, kneading, rubbing and stretching. Manifold are the effects of heat upon the arterial wall. On a relaxed artery heating to 60-65° C. causes a well-marked and commonly extensive contraction. This is to be attributed to the elastic and connective tissue elements of the artery, for it is seen in arteries in which the muscular proteids have been removd by prolonged maceration in large quantities of saline solution. On the other hand in the case of an artery contracted postmortem, heating to 50-55° C. causes relaxation; a further rise to 60-65° C. leads to the appearance of contraction. There is abundant evidence in favor of the conclusion. that postmortem contraction is a true persistent contraction, very different in many respects from the rigor mortis of skeletal muscle.

The Thyroid in Inanition.—An experimental contribution to the knowledge of the changes occurring in the body in the fasting condition is made by A. G. BARBÈRA and D. BICCI (Bul. delle Scie. Med. di Bologna Serie VIII, vol. II, 1902); this work following similar studies of the suprarenal capsule. It was found that inanition caused, in the cells of the thyroid as well as those of the suprarenal capsule, reduction in volume of nucleus and protoplasm, the change being most marked in the latter; especially does the nucleus of the thyroid cell lose less than that of the suprarenal. From the fact that in inanition the loss in weight is least in those tissues and organs which fill the highest functions, as for example those of the central nervous system, the author formulates the theory that the greater loss in the lower order of tissues may be ascribed to the fact that they contribute something of their own substance to prolong the life of the higher. A parallel is drawn between the higher order of tissues and the more highly developed and essential part of the cell i.e. the nucleus, on the hypothesis that the protoplasm assimilates solely nutritive substances derived from outside the cell, while the nucleus not only obtains nutrition from these same substances, but also from the protoplasm itself; thus accounting for the greater diminution in volume of the latter in the fasting animal. It was further observed that at no period of the fast did the cells of the thyroid cease to elaborate its colloid substance, though the quantity was somewhat reduced. The intercellular substance was likewise decreased.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Significance of Eosinophilia.—Undoubtedly too great importance has been attached by some to the presence of an eosinophilia in the blood, but we must now look for helpful suggestions in differential diagnosis by watching closely the information which is obtained from blood examinations, and we have already found that an eosinophilia is of great help in differentiating several diseases which, otherwise, closely resemble each other. T. R. BROWN (Maryland Med. Jour., July, 1902), has made careful blood examinations in a large number of cases and finds that an eosinophilia is commonly found in the following conditions, besides that disease in which a marked increase of these cells was originally described: Splenomyelogenous leucemia, bronchial asthma, acute and chronic skin diseases, especially pemphigus and eczema; intestinal parasitic diseases, the most important of which are anchylostomiasis and trichinosis; scarlet fever, especially in the second and third weeks of cases terminating favorably; sometimes in malignant tumors; drug eosinophilia, of which perhaps acetanilid furnishes the most marked example and the moderate eosinophilia which sometimes appears in gout, gonorrhea, syphilis, malaria, rheumatism and chorea. The presence of this blood condition has already served several times to differentiate trichinosis from malaria or typhoid, and the discovery of an eosinophilia has frequently been the first clue obtained to the real nature of the disease. In a severe case of anemia an eosinophilia is very helpful in diagnosing ankylo-stomiasis from pernicious anemia. As regards prognosis an eosinophilia is of real value in several conditions such as typhoid, where an early reappearance of these cells (they disappear in the stage of continued fever) points to a favorable prognosis; in the anemias where a slight eosinophilia is a good sign; in tuberculosis where it is also looked upon favorably; and in various surgical conditions where the presence of a moderate increase is considered hopeful. More extended investigations will undoubtedly lead to more definite and more valuable diagnostic and prognostic conclusions relative to eosinophilia.

The Effects of Typhoid Bacteria Products.—A contribution to the question of the relationship between the agglutinating and immunizing properties of blood serum is made by A. SCHÜTZE (Deut. med. Woch., July 3, 1902). He made use of a specially prepared extract of B. typhosus by ammonium salts, which was supposed to contain a substance capable of generating a specific typhoid-agglutinin in the body. The injections were made in a series of rabbits and guinea-pigs. It was found that after repeated injections, agglutinating substances could be demonstrated, which in a dilution of 1 to 300 caused an immediate agglutination of typhoid bacilli in a test-tube. The same phenomenon could also be observed in a dilution of 1 to 1000 if the test-tube was placed for a half hour in an incubator at 37° C. The specific nature of this act was proved by the failure of the serum to act with other bacterial cultures. That this serum contained no immunizing properties was also demonstrated by its failure to protect when injected, against even a small quantity of typhoid culture. The author concludes that it is possible to produce in the blood serum of rabbits a substance with specific agglutinating properties against typhoid bacilli, by means of the injection of a fluid derived by chemical agencies from pure typhoid cultures, which in itself does not possesses agglutinating properties. Moreover, such a serum possesses no immunizing properties, and the writer believes there is no connection between the typhoid agglutinating and immunizing bodies.

Action of Finsen Light Therapy on Lupus.—The first anatomical structures upon which the electric light of the Finsen method acts, are the blood-vessels where a swelling and proliferation of the lining endothelial cells takes place. This is best seen in the uncomplicated angiomata of the skin but can be followed as well in the more complex lupus nodule. That the whole process is not in the nature of a cauterization is best proven according to A. SACK (Münch. med. Woch., July 8, 1902) by the absence of all coagulation necrosis. The cellular, retrogressive changes may be in part necrobiotic, yet are elective in that they involve only the most pathologically altered elements, those only slightly changed being rendered healthier and ultimately converted into connective tissue. A bactericidal power is also present, but is subordinate.

Physiological Function of Tumors.—From the standpoint of an ardent opponent to the parasitic theory, E. ALBRECHT (Münch, med. Woch., July 8, 1902) argues the pathogenesis of tumors. The fact that so often the change from benign to malignant can be well observed and forms an orderly series of lesions, frequently taking their start in a simple hyperplasia, seems to indicate that there is some process at work independent of germs, but incited by some as yet unknown disturbance to the normal equlibrium of cell-life. A good example is the change from a simple endometritis to the glandular polypi of the uterus and these again to the adenocarcinomata. We are as much in doubt to-day as ever as to what converts the harmless, typically growing tumor into a structure composed of cells showing marked aberrations in their growth and cell-division, yet the general impression that one receives is that it is merely the last stage of one and the same process that has created conditions, which, in that they are eventually inimical to life, must be considered as malignant. The fact that meta-static growths may functionate as does the organ from which they are derived, is a peculiar phenomenon which favors the non-parasitic view and which proves another maxim in physiology, namely, that the relation of a gland to its blood-vessels, without the presence of secretory nerves, is sufficient to allow it to secrete. Several cases are on record where the metastases of a hepatic carcinoma secreted bile in the lungs. The author's interesting case is an endothelioma of the dura mater which, although considerable of the cortex had been invaded, had caused no symptoms during life except by a metastasis in the bladder leading to a hydronephrosis. Microscopic examination showed the tumor to be alveolar in structure, the alveoli being filled with erythro-blasts and communicating with the blood-stream. Everything pointed to the fact that hematopoiesis was going on in the growth and the same process could also be seen in the vesical metastasis so that both carried out a physiological function.

Topical Diagnosis of Gastric Tumors.—It has been shown that the gastric mucosa presents local differences in its secretory powers, the fundus producing both pepsin and rennet ferments, while the pylorus produces pepsin only. Glaessner (Berlin. klin. Woch., July 21, 1902) has attempted to make use of these facts in the localization of gastric tumors, as these usually occupy one of these regions and are capable of inducing marked secretory changes in the parts of the stomach in question. A series of tests were made in 13 cases, the free hydrochloric acid, total acids, pepsin and rennet ingredients being measured after the Ewald test breakfast. The author thinks the method of value if other means have failed. He states that if both rennet and pepsin are markedly diminished a fundus tumor is probably present. If the rennet ferment, however, maintains a good ratio when compared with the pepsin, the tumor is to be found at the pylorus.

Pathology of a Case of Poliencephalomyelitis.—Engorgement of the vessels of the gray and white matter throughout the cervical cord, medulla, pons and crura, perivascular infiltration of round and oval cells in the gray matter, and, to a less extent in the white matter from the lower end of the decussation of the pyramidal tracts to the exit of the third nerve, this infiltration more marked on the right than on the left; degeneration of the multipolar cells of the anterior horns of the cervical cord (especially on the right side) of the cell of the lower two-thirds of the nucleus of the seventh on the right and of the lower third of the nucleus of the sixth; edema and numerous hyaline bodies in the gray and white matter and in the perivascular spaces in the tegmentum of the pons at the level of the nucleus of the fourth nerve, extending beyond the exit of the third nerve; engorgement of the vessels and edema in the brain without capillary hemorrhages or degeneration of the white tracts; all these were the lesions found in a case of poliencephalomyelitis by A. Hamilton (Jour. of Med. Research, June, 1902). That this was a case of primary acute inflammation, toxic in origin of the gray matter of the cervical cord, medulla and pons seemed most probable, though it differed from the typical disease of Wernicke in several respects. Wernicke's disease attacks adults, usually alcoholics; this patient was a child of five. The nuclei involved usually form themselves into two groups, those of the external ocular, third, fourth and sixth—poliencephalitis superior; or the motor nuclei between and including the seventh and twelfth—poliencephalitis inferior. These forms may be combined wholly or in part, but the involvement of the gray matter of the cervical cord with the nucleus of the sixth and seventh has never been described before, though a combination of the cervical cord, the twelfth nucleus and the seventh is not so uncommon. The disease is described as lasting seven to 14 days, but this case ran an unusually rapid course, being fatal in less than three days, and was further peculiar by the absence of capillary hemorrhages and by the rapid degeneration of the nerve-cells. The remarkable harmony between the clinical history and the pathological findings in the case deserve to be pointed out in view of the great disparity between the two so often found, yet the harmony was not complete even here. The respiratory symptoms in the form of Cheyne-Stokes breathing would lead one to expect degenerative changes in the nuclei of the tenth, but these were found to be normal. The respiratory disturbances, however, came on much later than the paralysis of the sixth and seventh nerves, and it is well known that the earliest stages of degeneration in nerve-cells are not demonstrable by staining methods. The wandering cells found were of four types, viz., small, mononuclear with round, deeply-staining nucleus, large, pale, epithelioid cells, polymorphonuclear leucocytes and a few giant cells. No plasma cells were found. The hyaline bodies gave only one specific amyloid reaction: that with methyl violet, hence it could not be considered corpara amylacea; it is likely that they resulted from post-mortal coagulation of an exudate.

Gliomata of Ependymal Origin.—Three interesting gliomata are reported by F. B. Mallory (Jour. of Med. Research, June, 1902). The first tumor was a very vascular, slowly growing glioma of the fourth ventricle. The cells tended to fuse together into cell-clumps, some of which contained minute lamina, and definite gland cavities of various sizes were present. The peculiar round, oval and rod-shaped, differentially staining markings, characteristic of ependymal cells could be seen not only in the cells lining the gland-like cavities, but also in the cell-clumps and in many of the single cells. They varied from about 10 to 30 in a group and were usually situated in the periphery of a lighter staining area in the protoplasm. Delicate neuroglia fibers were quite abundant throughout the tumor. The second growth, likewise from the fourth ventricle was much less vascular and consisted of cellular and dense areas of neuroglia tissue. In the cellular areas the cells tended to fuse together and definite gland-like cavities also occurred. The markings peculiar to ependymal cells were present in the cells of this tumor as well, but in smaller number, varying from two to about 10 in a cell. The third tumor was interesting from its locality, its structure and its histogenesis. Situated subcutaneously over the coccyx, it resembled in its structure a carcinoma, consisting of masses of epithelioid cells embedded in the meshes of a connective tissue stroma; but between the epithelioid cells occurred a second intercellular substance, namely, fine and coarse fibers which stained by the differential methods for neuroglia fibers. Moreover, many of the cells contained from one to five minute rod-shaped markings which stained by the same methods. In consequence of these it seemed reasonable to infer that all these tumors were of ependymal origin, and possibly all gliomata of this kind are definitely characterized in the same manner.

Mode of Action of Various Laking Agents on Blood Corpuscles.—The action of a number of hemolytic agents on fresh and hardened blood has been studied by G. N. Steward (Jour. of Med. Research, June, 1902) with the following results: Ether disolves out a considerable amount of material, including cholesterin from washed, formalin-fixed corpuscles. Sapotoxin produces no change in the conductivity of a suspension of such ether-extracted corpuscles. It probably produces the increase of permeability in the unextracted formalin corpuscles by an action on substances soluble in ether. It is to be presumed that it also acts in this way when it lakes unfixed corpuscle. Sapotoxin causes no change in the conductivity of a suspension of washed sublimate-fixed corpuscles and these can be laked by heating them in water. The addition of ammonia to formalin-fixed corpuscles changes the methemoglobin spectrum into that of oxyhemoglobin. The corpuscles can then be laked by the addition of water, slowly in the cold, rapidly on heating. Corrosive sublimate and formalin do not seem to fix precisely the same constituents of the corpuscles. The former fixes the stroma very rapidly and the mercury can be withdrawn from its combination by sulphuretted hydrogen. On the further addition of ammonia, or on adding ammonium sulphide at once, the ghosts may disappear. Amyl alcohol in its laking action does not appear to cause the liberation of the electrolytes of the corpuscles, and the same is true for ether, except in larger amounts. Some of the agents investigated are active leucolytic agents (especially sodium taurocholate), but there is no direct proportion between their erythrolytic and their leucolytic power. Although some laking agents, such as crude saponin sapotoxin and sodium taurocholate increase the permeability of formalin-hardened corpuscles and might, therefore, be supposed to produce their laking action on unhardened corpuscles by increasing their permeability to the dissolved substances of the serum and thus causing water-laking, evidence is brought forward that this is not the primary action of these substances, although it may be a secondary one. For laking was produced by all the agents investigated in blood to which excess of cane-sugar, which does not penetrate the normal corpuscles, has been added. Even when blood is saturated with cane-sugar, laking occurs. Only in the case of foreign serum is the laking notably delayed and rendered incomplete. Laking is also produced by the various agents in sediments of corpuscles freed as far as possible from serum and containing so little inter-corpuscular water that even the entrance of the whole of it into the corpuscles could only cause a small amount of water-laking.

Bacteriology of Pulmonary Gangrene.—In five cases of pulmonary gangrene, four of which were chronic and one acute, W. Ophuls (Jour. of Med. Research, June, 1902) found a number of bacilli with the following characteristics: They were long, slender, more or less curved rods or threads with irregularly staining protoplasm, occurring in clusters and showing true branching. With methylene blue they stained badly, better with dilute carbre-fuchsine and very well with Gram's method. After having been stained with Ziehe's carbre-fuchsine the bacteria decolorized in acid alcohol but not in aqueous solution of sulphuric acid. Attempts at cultivation failed except in one case, and here only a scanty growth was obtained. It is most likely that these acid-proof bacilli belong to the class of actinomyces and are of a more saprophytic nature, most probably being derived from the mouth.

Clinical Nature of Bile after Cholecystotomy.—An examination into the chemical nature of bile as it flows out of biliary fistulæ was made by A. E. Austin (Jour. of Med. Research, June, 1902) in the hopes of obtaining some clues as to the formation of gall-stones. Associated with a diminished amount of solids there was found to be a diminution in the total bile as compared with the normal. The cholalic acid was considerably reduced, and much to the author's surprise there was no increase in the amount of cholestrin present. One case showed more lecithin than normal, the calcium was not in excess and the difficulties in quantitative determination of the taurin and glycocoll were so great that these results were omitted. The diminished amount of cholalic acid, the natural solvent for cholestrin may be the chief factor in the formation of the stones.

Simple Media for Differentiating Typhoid from Colon Bacilli.—The general tendency to complicate media is strongly criticized by P. H. Hiss (Jour. of Med. Research, June, 1902), who has been able to differentiate the typhoid from the colon bacilli satisfactorily by means of simple combinations. The medium which has been most thoroughly tested consists of agar, 15 grams; gelatine, 15 grams; Liebig's extract of meat, five grams; sodium chloride, five grams and dextrose, 10 grams to 1000 cubic centimeters of distilled water. No correction as to reaction is necessary. The best method of making an investigation on feces is to transfer one to several loopfuls to a tube of nutrient broth or sterile water, making a fairly cloudy emulsion. From this emulsion five or six plates are usually made by transferring one to five loopfuls of the emulsion to tubes containing the melted plate medium. When the loopful of the emulsion is thoroughly mixed with the medium, this is poured into a Petri dish, allowed to harden and kept for 12 to 18 hours at 37° C. The deep typhoid colonies are of irregular shape with well-marked threads of bacilli given off from them; their texture is generally loose and their color often light-green, becoming darker in the large ones. The surface colonies may be quite flat and homogeneous, or may show a denser center with threads spreading out from it. On the other hand the typical deep colon colonies are denser, darker and larger and do not have irregular outgrowths or fringing threads. The surface colonies are quite characteristic in that they are large, disc-shaped, of a deep color nearly to the periphery, terminating in a well-marked, light thin zone. The typical thread-forming colonies of typhoid together with the diffuse clouding and non-gas formation are found seldom, if ever, as characters of organisms other than typhoid bacilli occurring in feces, so that these latter may be readily identified in 24 to 36 hours. Even the intermediate or Gärtner group gave different pictures.

Carcinoma and Tuberculosis in the Same Tissue.—Five cases where tuberculosis and carcinoma were present in one and the same organ, are recorded by H. Moak (Jour. of Med. Research, June, 1902). Two main questions of interest arise from their study; the mode of origin of the hybrid disease and the possibility of any real antagonism between the two processes. It seems quite certain that either one may appear first in the affected tissue or that both may appear together, and it is probable that in some regions one form of the combination is especially apt to occur and in other regions another, the difference depending partly on the anatomical peculiarities and partly on the susceptibilities of the tissues. In considering the supposed antagonism, a number of factors must be taken into consideration, the most important of which are: (1) That cases of active tuberculosis occur for the most part at a time of life before carcinoma becomes prevalent; (2) that the figures showing that carcinoma and tuberculosis apparently exclude one another are based altogether on cases of active tuberculosis and do not take into account latent or healed tuberculosis; and (3) that the organs most frequently affected by tuberculosis are not the organs most frequently attacked by carcinoma. The conclusion thus is, that there is no real antagonism between carcinoma and tuberculosis.

Diagnosis of Typhoid Fever.—A method claimed by Chantemesse (Bulletin de l'Academie de Médecine, July 14, 1902) to be of easy applicability is as follows: A small amount of fecal matter, as fresh as possible, is planted in a large tube containing 10 c.c. of 3 per cent. neutral peptone water. After six or seven hours in an incubator at 37° C., the liquid is filtered and two or three drops of very strong anti-typhoid agglutinating serum added. On centrifuging, a clot, mostly composed of typhoid bacilli, forms at the bottom of the tube. The supernatant liquid is decanted and a few drops of sterile water added to the clot. This is then thrown on a flat paper filter, the non-agglutinated bacilli being carried through while the agglutinated remain on the filter. The paper is then tapped over Petri dishes containing the following mixture: Peptone water (Defresne) three parts, gelose 2 parts, lactose 2 parts, water to make 100 parts and to each 10 c.c. is added four drops of 3-per-cent. solution of carbolic acid and 1 c.c. of tincture of litmus. At the end of 12 hours in the incubator, the typhoid cultures are recognized by their smallness and pearl blue color, while the colonies of colon bacillus are red. In all cases of typhoid fever the author finds typhoid bacilli in the feces, even before the Widal reaction can be obtained.

Blood in Scarlet Fever.—The results of the examinations of the blood in a number of cases of scarlatina conducted by D. Reckzeh (Zeitsch. f. klin. Med., vol. 45, Nos. 3 and 4) showed only a moderate anemia, the red cells averaging four and a half millions. The temperature and complications did not influence this number and even very severe nephritis with hematuria caused no reduction. Qualitative changes in the red cells were not of common occurrence, though slight variations in sizes and intensity in coloring and rarely poikilocytosis with normoblasts were seen. The amount of hemoglobin corresponded to the number of red cells, the average figure being 90 per cent. No variations were noted as to formation of fibrin, shrinking or development of rouleaux, but the blood-platelets suffered a considerable increase during the end of the febrile period. Especially when contrasted with measles, the condition of the leucocytes was interesting. On the second day of the disease their number was normal or slightly increased, to rapidly reach high figures with the full development of the rash and then to fall slowly so that the normal is not yet reached after fever and eruption have already disappeared. Polynuclear cells form the largest percentage of the leucocytes; the lymphocytes were correspondingly diminished but may be slightly above the norm toward the end of the third week, unless the case is complicated by glandular swellings when somewhat higher figures are obtained throughout the disease. Of high importance is the proportion of eosinophiles which is high irrespective of the leucocytosis and which reaches its acme with the disappearance of the rash. Mast-cells were sometimes found but their presence is of no importance. From a prognostic point of view the disappearance of the leucocytosis is of no value since complications, such as a nephritis, may still set in. The great value of a blood examination in scarlet fever lies in differentiating this disease from measles, since in the latter there is a hypoleucocytosis and the eosinophiles are not increased.

THERAPEUTICS.

Sanatoria in the Treatment of Consumption.—Of a large number of patients, the course of whose diseases was carefully observed at well-recommended sanatoria, 35 per cent. were restored to apparently full health, 38.6 per cent. were considerably improved, and only 22.5 were not influenced by the modern method of treating consumption. D. Hammer (Münch. med. Woch., July 1, 1902) has contrasted these figures with those furnished by the large class of consumptives who are not able to receive sanatorium treatment, and finds, strangely enough, that both sets of figures almost correspond. The old observation that tuberculosis among the lower working classes is readily amenable to treatment as long as the patients merely cease work for a short time, while with the better classes much more favorable conditions must be instituted, seems to be partially responsible for this. Change of climate is always followed by the best results in incipient cases, but unfortunately there is as yet no reliable method or sign which permits with certainty an early diagnosis. If not absolutely certain, it is unjust to the patient if his physician expects him to live in a colony of consumptives, even though he be more than reasonably sure of the true nature of the condition.

Treatment of Furuncles.—Attention has lately been called to the abortive treatment of this condition by the subcutaneous injection of carbolic acid, in an article by Bidder, who claims to have used the method with success for many years. In line with this appears a method advocated by Trenite (Deut. med. Woch., July 10, 1902), which has also stood the test of time. He employs a watery solution of pyoctanin, 1 in 500, of which a sufficient quantity is injected into the furuncle to give it a decidedly blue color. The needle is introduced into the healthy surrounding skin, and when the inflammatory area is reached is pushed in various directions. If numerous sinuses are present as in a carbuncle, several injections are necessary, and resolution may be hastened by wet dressings of a solution of hypochlorite of soda.

Treatment of Erysipelas.—A unique method of treating this condition has been in vogue in Bulgaria for some time and is now reported by Tregubow (Deut. med. Woch., July 3, 1902). It depends on the effects of a flame applied to the affected area until a burn of the first degree results. A small wad of cotton moistened with alcohol is lighted and held by means of forceps close to the skin. No harm is done if the skin is touched by the flame. As soon as pain begins the flame is transferred to a fresh area until the entire affected surface has been treated. Where practicable an ordinary spirit-lamp may be used. This process should be applied two or three times daily. The writer, who claims to have had great success with the method, has usually not found it necessary to continue the treatment for more than two days.

THERAPEUTIC HINTS.

Antistreptococcus Serum in Erysipelas.—In February, 1895, Marmorek reported forty-five cures of erysipelas by this serum, so in six cases of surgical erysipelas Edwin Rosenthal (Annals of Gynecology and Pediatry, June, 1902) applied the treatment. He injected 10 c.c. morning and evening and in one case 20 c.c., but without any modification of the course of the disease. He, therefore, rejects the treatment as valueless.

Hematuria.—

℞ Ext. Physostigmatis ......gram 0.40 (gr. vii)
Ergotini .... 2.0 (gr. xxx)
Ext. Gentianæ. q. s.

M. et div. in pil. no. xx. Sig.: One to two pills a day, increasing one pill a day till the desired effect is obtained or intolerance established.—Giovanni in Le Progrès Médical, July 5, 1902.

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CLINICAL OSMOLOGY—A NEW DEPARTMENT OF PRACTICAL MEDICINE.

THE adjective clinical attached to a novel feature in medicine always attracts the attention of even the most case-hardened practitioner. The new science of applied osmology, physiological and pathological, has developed in recent years until now it claims the privilege of a separate text-book for its promulgation. Lehrbuch der klinischen Osmologie als funktionelle Pathologie und Therapie nebst ausführlicher Anweisung zur kryoskopischen Technik, von H. Zikel (Fischer, Berlin, 1902), merits attention, for it is suggestive along lines in medicine with regard to which up to the present time there has been the most inscrutable mystery. The effects of acute infectious diseases on the blood, the morbid sanguinary changes produced by such conditions as chlorosis, leucemia, scorbutus, pseudoleucemia and the hemorrhagic diathesis have all proven to be beyond the most thorough investigation of pathological chemistry as heretofore applied. But at last they are yielding up a part of their secret to the searching methods of osmopathology.

In an introductory essay written for the new text-book Prof. Senator of Berlin says that the application to medicine of the investigative methods employed in the physical sciences has always given us the most important practical advances in diagnosis. We have learned that living bodies are subject to the same physical and chemical laws that govern the rest of nature. The further introduction of such methods then cannot but be promising. As the laws and phenomena of osmosis have been of great significance in the borderland of chemistry and physics, they can scarcely fail to be of service in medicine where physics and chemistry meet, as it were, on common ground. Already in pharmacology it has been recognized that the effect of many remedies depends upon the osmotic alterations they induce in the tissues. We are at length realizing that the principles of osmosis may prove of service in the explanation of organic function and the internal metabolism of the tissues, though much work on the part of many observers will be needed before these mysteries are rendered clearer.

The first steps in the new branch of medicine were undertaken not more than 10 years ago. In 1893 Koranyi, the distinguished Hungarian professor of clinical medicine at Budapest, showed that the freezing-point of urine might be made a clinical test somewhat more delicate and exact in its significance than the complicated chemical analyses that had been introduced. This method is founded on Raoult's well-known law used for the determination of atomic weight in chemistry, which may be stated as follows: The lowering of the freezing-point of a solution is proportional to the number of molecules dissolved in the unit of volume of the liquid, whatever be the nature and weight of the molecules.

Of two urines then, that whose freezing-point is lower than the other's will contain more molecules in solution. Apart from the sodium chlorid that comes through in the urine, the efficiency of this fluid as an excrementitious product depends on the number of molecules it contains. The more highly organized the products that are dissolved in the urine, the fewer the molecules, since organic products like albumin contain molecules of large size. If the metabolism of the tissues is normal these higher molecules are broken up with the release of energy and the multiplication of molecules. It is the special function of living tissues thus to obtain energy by breaking up the more highly organized molecules of carbon compounds into those of molecularly lower status. The determination of the freezing-point of the urine, cryoscopy, as it is called, from the Greek words κρύος ice, and σκοπεῖν to investigate, may well serve as a test of the efficiency of metabolism and especially may serve as an index of kidney sufficiency.

From cryoscopic examination of the urine to that of the blood-serum was a natural step, and thus the first index of internal osmosis was obtained. Interchange of products in solution through animal membranes—that is to say, the active osmosis that keeps up the constant metabolism constituting life—depends to a great extent on the number of molecules in solution in a given nutrient liquid. Variations in the cryoscopic coefficient may then be taken as representing differences in the efficiency of many metabolic processes within the body. The first practical application of these principles came when Koranyi suggested that the cryoscopy of the blood-serum might furnish an index of the respiration insufficiency in cardiac disease with progressive failure of compensation. Kovács of Vienna demonstrated that there was a heightened osmotic pressure of the blood during insufficiency and that this could be modified favorably by the use of oxygen inhalations. Such inhalations produced an immediate alteration in the freezing-point of the blood. In the test-tube the presence of carbonic dioxid lowered the freezing-point, while its replacement by oxygen raised it again. These experiments furnished a firm basis in theory for the use of oxygen in all diseases in which there is a tendency to the accumulation of carbon dioxid in the blood.

Koranyi has applied this method of examination especially for the purpose of determining the method of living most suitable for those affected with cardiac diseases. In those whose heart muscle is weak, though there may be no signs of actual incompetency, the slightest excess of exercise—and this is a very relative term, being quite different for each individual—is at once noticeable in the cryoscopic blood coefficient. Careful observation of this factor enables the physician to decide with certainty how much exercise may be allowed without incurring such risk.

In a word, the new department of clinical medicine promises to be not only of theoretic but of practical advantage. It may be objected that the methods of blood and urine examination suggested are too technical and too complicated. The same objection was urged against the chemical examination of the urine, the microscopical examination of the blood, and even more strenuously against the introduction of bacteriological methods into practical medicine; yet at the present time these are in possession of an undisputed field in medicine. So many clinical authorities see a future in osmopathology and osmotherapy that the subjects must be considered worthy of faithful observation by those ambitious of keeping abreast of medical progress.

ANENT "APERITIFS."

The French medical mind, which is quick and ready to receive impressions, but which also has a subacute tendency to hysteria, seems to be much exercised over the report of the commission appointed to investigate the manufacture, sale and use of cordials, liqueurs, and other appetizers. That their use, and more particularly their abuse, should be productive of harm when long continued is too patent a fact to require an academic board to demonstrate, especially when these more or less alcoholic, essence-laden "aperitifs" are used as a stimulant to the passions of the lower class, the exuberance of whose spirits usually finds vent in the individual by the playful use of the *savate* on his unoffending neighbor, and which expresses itself collectively by the formation of a commune.

Hard liquor is proverbially supposed to give courage to the phlegmatic Dutch, and may add desperation to the Anglo-Saxon thug, but the use of these liqueurs brings neither to his neighbor across the channel, and the mixing of the blue powder of acute stimulation with the white one of an utterly wrecked nervous condition produces only a temporary effervescence, which is followed, according to the testimony of their own investigators, by a final "flatness" of decadence, degeneration and paresis. This is not a new condition of affairs, for a law forbidding the manufacture and sale of absinthe was passed in 1848, but as its execution would have interfered largely with the revenue receipts it has never been enforced, while not only has the liqueur habit increased and spread, but the quality of the cordials themselves has deteriorated until, from the use of synthetic essences in the place of those of the natural fruits, they have become more deleterious than ever and a most prolific source of ill health and crime.

Acting under this belief a year ago, Dr. Valliant, a socialist deputy, during a parliamentary debate on the liquor laws, made a motion that the

French Academy of Medicine should be asked to submit a list of the alcoholic drinks containing essences dangerous to the public health in order that their manufacture might be forbidden and their sale in the cafés prohibited. As the minister in control failed to report the proposition, the Academy independently appointed a commission under the chairmanship of M. Laborde who has, according to the London Lancet, sent the results of their examinations directly to the Chamber of Deputies.

The first impression gained on perusing this report, is a feeling of wonder that any of the guilty should have escaped, for the simple cordials of our post-prandial *chasse* have resolved themselves into the most active and violent of Borgian draughts. Absinthe in every quality, including the best, contains poisonous elements, while the other liqueurs which are generally made from synthetic essences, are dangerous in the extreme. Even vermuth is no exception, and chartreuse contains thirteen substances which can produce serious results, vulnerary has fifteen and anisette heads the list with still more, but in this case the synthetic essence contains a quantity of hydrocyanic acid, which is unquestionably the legitimate spouse, while the others are mere corespondents. For so strong is this essence, says the report, that a few inhalations from a bottle containing it produce grave symptoms of syncope and a feeling of illness that lasts for several days. French gin (Genievre), a form of wood spirit, is most injurious, and bitters are also dangerous.

With such an ample and economical supply as this to meet the demand of a strong and rising market it is only natural that we should expect to see some immediate result from the combination, and in this we are not disappointed, for Dr. R. Grisel, writing in L'Echo de Paris, speaks most openly, not only of the increased consumption of these liquids, even by women and children, but also of the unwillingness of the government, for budgetary considerations, to do anything to check the downward movement. He also asks rather pertinently, if it would not be a better business proposition for the state to forego the revenue resulting from the sale of these drinks—a source of income already reduced by extensive frauds—than to expend the profits for asylums for the victims of alcoholic madness, hospitals for diseases caused by absinthe drinking, and prisons for the criminals that it creates. To this catalogue of horrors he adds a diminution of the birth-rate, an increase in the mortality of infants, and a vast enlargement of the number of idiots and cripples, with a growing development of consumption, of which alcohol is, he says, one of the principal factors.

What the ultimate fate of the report will be in the Chamber of Deputies remains to be seen. It may be smothered outright by the insolence of office or die a lingering death from the inanition of the law's delay. That some action should be taken is painfully apparent, but parliamentary bodies move slowly, and it is evident from the experience of the past that the accomplishment of medical legislation cannot yet be classed as one of the things that they "do better in France."

THE ARMY NURSE CORPS.

Americans are, as a race, progressive, if they are nothing else, and the formation of the "Army Nurse Corps," recently organized, uniformed and equipped, under the provisions of the Army reorganization act, is as novel in its conception as it is unique in its consummation. For of all the great armies of the world, that of the United States is the only one that has a regularly organized female contingent. The nearest approach to it in the past was perhaps the *vivandière* of the French Army, and she, outside of the expurgated and etherealized *la Cigale,* seldom nursed anything but her wrath, and was by nature much more suited for the couch of the quick than she was adapted by her training for the bedside of the dying. Brave she was, and cheery, too, in her gay red skirts, but her place, with her little brass-bound barrel, was with the men in action, and her rôle was rather that of a ministering Amazon than one of a calm and self-collected nurse behind the firing-line.

Now this is all changed, and in place of a body of camp-followers, irresponsible and undisciplined, even if blessed with the dash and *élan* of the "Cigarette" type, we are to have a trained corps of competent women, governed by the regulations of the Army and subject to the orders of their immediate superiors in the performance of their duty, with the usual penalties of the service for disobedience of commands and neglect of regulations.

The uniform of the corps consists of a waist and skirt of some suitable white material, detached white cuffs, clerical collar and white apron, with a cap of regulation pattern, while the corps badge, which is the same as that of the medical department, is displayed on the left side of the collar when the nurse is in uniform, and on a corresponding part of her dress when she is not.

That such a corps of women will prove an undisguised blessing to our Army, either in the field or in our distant outlying possessions, is evident, for with the casualties of actual warfare and the ravages of tropical epidemics, the demands for its services will be continuous, and the nurse will not find that her burden is light, or that her yoke is always easy, but the good that she will do will be as incalculable as the comfort she will bring, a comfort not only to the maimed and stricken themselves, but to those afar who will always feel—thanks to her—that at the end, even in a strange land, there was no "lack of woman's nursing" nor yet "dearth of woman's tears."

ECHOES AND NEWS.

NEW YORK.

Smallpox Banished from Manhattan.—After a struggle of more than two years the Health Department is now able to announce that there is no case of smallpox in the Borough of Manhattan. Brooklyn has only three cases at the present time. Last year New York City had an average of 80 cases reported per week, or over 4,000 during the year. The Board of Health attributes its success chiefly to vaccination and revaccination.

Subway Nuisances.—W. B. Parsons, Chief Engineer of the subway, and President Lederle of the Board of Health have had a conference in relation to the necessary steps for keeping the subway excavation clear of refuse and stagnant water. Many complaints have been received by the Board of Health to the effect that sewers have been broken, refuse thrown into the excavation, and pools of stagnant water allowed to stand there. It was decided to ask Commissioner Partridge to request the police to assist the watchmen employed on the tunnel in keeping persons from throwing refuse into the subway, and Mr. Parsons promised to request the assistance of the contractors in keeping the excavation clean. President Lederle has detailed two inspectors to investigate the nuisances.

Lincoln Hospital's Broader Field.—The Colored Home and Hospital at East One Hundred and Forty-first Street and Southern Boulevard changed its name on August 15, by application in the Supreme Court, to the Lincoln Hospital and Home. It will henceforth be conducted as a hospital open to all races and creeds, though the "home" connected with it is reserved for aged and infirm negroes. It had become more and more evident that the necessity no longer existed for a hospital devoted to the care of negroes exclusively. The general hospitals of the city receive them as readily as the white. Furthermore, there is a prejudice among negroes against entering an institution set apart for their own race, and they have shown a decided preference for the hospitals which take both white and black. As a result the wards erected in 1898 were not as well occupied as the friends of the institution had hoped. The residents of Bronx Borough had been sending complaints to the city that the hospital facilities in the Bronx were inadequate, and had expressed a desire for an improved ambulance service. The Board of Managers of the colored hospital and their advisers then made the institution a general one. In order to supply the Bronx the improved emergency service so urgently required, the institution has procured a complete ambulance outfit, and Commissioner Partridge has assigned the Thirty-fifth precinct for ambulance patrol. All classes of cases will be looked after at the hospital, and none are transferred to other institutions. A training-school for colored nurses is maintained by the hospital, and two years' theoretical and practical work are required for graduation. The entire nursing is carried on by the undergraduates of the school under the supervision of a superintendent of nurses. There are already 18 graduates, all of whom are engaged in active work as private or institutional nurses.

Governor Odell on Hospitals.—The ceremony of laying the corner-stone of the new hospital at Dobbs Ferry took place on August 29, and was made memorable by a speech from the Governor of the State. His speech consisted mainly of general reflections upon disease and charity, such as were befitting the occasion, but contained also the following significant passage, which may be considered as the official expression of the executive anent the State hospitals: "There may be difference of opinion as to the extent to which we should go in the consideration of this question, but there is none as to the desirability of continuing the work. I have often thought that perhaps we were too narrow in the conception of our duties, that in the treatment of the wards of the commonwealth we were transgressing somewhat the limitations which should surround the administration of this important department of the State government. I never believed, however, that the State did not owe to every citizen the duty of giving to him the best service and the most enlightened treatment. There is a happy medium between the enthusiasm which does not stop short of extravagance and cold business proclivities which can see only the saving which may be far from economy. We should not, however, in our consideration and treatment of this subject, forget that we owe a duty not only to the weak, but also to those who contribute; that charity should not be abused, and that its liberal character should not be taxed to such an extent as to defeat the object for which it is intended. It was my privilege during the past year to visit all of the State's institutions, and what impressed me more than anything else was that the extravagance of our people had led them more in the direction of expensive and ornate buildings than towards the food supply and medical treatment that was designed to bring back health and intelligence. It led me to the conclusion that those who were nominally in control practically exercised but little influence for the good of the inmates. From this followed legislation intended to cure some of the evils which through years of neglect had grown up and to secure a corresponding benefit to the inmates. While its object was at the time misunderstood by some, I am convinced that the result will be of such lasting benefit that its value, which is now more fully recognized, will become more apparent with each succeeding year." In a strain which it is to be hoped is sincere, the Governor continued: "Politics should never be permitted to be a factor in the administration of institutions for the unfortunate. It has no place there, and I have so much confidence in the wisdom of our people that I do not believe they would tolerate such interference, but would be quick to condemn those who were instrumental in taking advantage of the deplorable physical conditions which exist in our institutions for either party or personal benefit."

PHILADELPHIA.

Dr. Keen to Resume Work.—Dr. W. W. Keen, who, with his two daughters, has been making a tour around the world during the past 15 months, is expected to arrive in New York September 19. Contrary to some reports in circulation, Dr. Keen will resume his teaching and practice.

Paper Money to be Washed.—In view of the reported prevalence of smallpox in New Jersey towns adjoining Philadelphia, many of the local banks have begun to wash and disinfect all paper money received. This precaution was taken during the height of the epidemic here, but of late had been abandoned.

Typhoid Fever Again Prevalent.—The report of the Bureau of Health shows 92 cases of typhoid fever during the week ending August 30. This is the largest number of cases reported for any one week since the threatened epidemic of last April and May, when the number varied from 97 to 137 weekly. These cases are not confined to any one section of the city.

Smallpox at Parryville.—Secretary Lee of the State Board of Health has been called to Parryville, a town of 500 people in the vicinity of Mauch Chunk, to quell a disturbance growing out of the fact that nearly one-tenth of the population have smallpox. The neighboring townships put up a barricade as quarantine, which on three occasions the inhabitants of the borough tore down. The arrival of Dr. Lee, who effected a compromise, averted bloodshed.

Program of the State Medical Society.—The official program of the fifty-second annual meeting of the Medical Society of the State of Pennsylvania to be held at Allentown September 16-18, has been issued. All sessions will be held in the Lyric Theater, 25 North Sixth Street. The session of Tuesday forenoon will be devoted entirely to the transaction of business. At the close of the afternoon session a visit will be made to the Allentown Hospital, the management of which will give a reception at the Livingston Club. On Tuesday evening the President's annual address will be delivered, and a reception given by the Medical Society of Lehigh County will follow it. On Wednesday afternoon, following adjournment, a visit will be paid to St. Luke's Hospital, South Bethlehem. Wednesday evening Secretary Hamilton will deliver a lecture on "Food Adulteration," after which receptions and smokers will be given by Drs. Herbst and Kress. The scientific program contains the names of many prominent physicians of the State and promises to be one of great practical value.

Instruction in Private Nursing.—Two bright young trained nurses of Philadelphia have discovered an entirely new field of usefulness for members of their profession. Having a talent for imparting knowledge, rather than a love of tending the sick, they have opened classes where well-to-do women in private life may learn the rudiments of trained nursing—enough to enable them to assist the doctor intelligently in their homes, in cases not serious enough to require the services of the professional nurse. Working independently of each other, they rented two small flats in different parts of the city, each of which has a bedroom, kitchen and bath, and these were fitted up as models of their kind for nursing purposes. They contained all modern sick-room improvements and appliances. When a class is in session it moves from one room to another, according as the lesson of the day demands. How one should dress in the sick-room and personal hygiene in order to prevent contagion are the first pieces of instruction given to the class. Each pupil is asked to provide herself with the necessary cap and apron, and a linen dress is recommended. Care of the bed—how to keep it clean and comfortable—is the next thing learned. Lifting the patient lightly and gently in order to change the bedding or shift the position is then mastered, followed by instruction in moving the convalescent, with many hints towards making her comfortable in any available couch or chair. For lessons, when practice of this kind is required, a woman is engaged by the teacher to represent the patient. After this the class turns its attention to the model sick-room itself. Methods of ventilation, the temperature, sweeping without raising dust, dusting without disturbing the quiet of the room are discussed and explained. The most convenient and sensible furniture for the sick-room, use and disinfection of the various appliances and utensils and the keeping of them clean and in order—these and all other points of sick-room hygiene are thoroughly gone into. The class then proceeds to devote its attention to administering to the patient personally, beginning with the simplest duties, such as taking the temperature of the body and keeping the daily register for the visiting physician. The preparation and application of baths, douches, water-bags, flannels, salt-bags, iodin, liniments, mustard plasters, poultices and enemata are likewise taught. Lastly a few lessons are devoted to the cooking of approved food and the construction of dainty dishes for the sick. Each course consists of 40 lessons. Two lessons are given to each class in a week, and a lesson lasts two hours. Not more than six pupils are admitted to one class, so that all may have the benefit of practice as well as the instruction. The charge is $1 a lesson for each pupil, which enables the nurse to realize almost $3 an hour on every class.

CHICAGO.

Election of Dr. Moyer.—Dr. Harold N. Moyer has been elected to the Chair of Neurology in the Chicago Eye, Ear, Nose and Throat College.

Appointment of Dr. Plummer.—Dr. S. C. Plummer, Jr., has been appointed Chief Surgeon of the Chicago, Rock Island and Pacific Railroad Company, vice Dr. William D. Middleton of Davenport, Ia., deceased.

Fees from Dispensary Patient.—Dr. Sidney Kuh secured a judgment for $20, August 19, for medical services rendered to a charity patient of the free clinic and hospital of the Post-Graduate Medical School. The patient went to the institution in March for treatment for a nervous disorder which had made her blind. As the physician ascertained that she had means, he considered it just that she should pay a reasonable fee.

Typhoid Fever.—During the week ending August 23 the deaths from typhoid fever numbered 53, the number for the previous week having been 45, while for the corresponding week of 1901 only 20 were recorded. The drastic measures employed in food condemnation and the missionary work of education in cleanly, decent American methods of living, pushed by the Visiting Nurse Association and the volunteer inspectors, are telling on the ignorance which, with its twin curse of poverty, is at the bottom of this excessive death-rate from the disease; and notwithstanding that there were eight more typhoid deaths last week than the week before, the Department of Health believes that the maximum has been reached.

Protection of Sight and Hearing of School Children.—The State Board of Health has issued a circular detailing the method by which tests of the sight and hearing of school children in the State may be made. The facts to be ascertained are the following: (1.) Does the pupil habitually suffer from inflamed lids or eyes? (2.) Does the pupil fail to read a majority of the letters in the number xx (20) line of the Snellen Test Types, with either eye? (3.) Do the eyes and head habitually grow weary and painful after study? (4.) Is the pupil probably cross-eyed? (5.) Does the pupil complain of earache in either ear? (6.) oDes matter (pus) or a foul odor proceed from either ear? (7.) Does tne pupil fail to hear an ordinary voice at 20 feet in a quiet room? (8.) Does the pupil fail to hear the tick of a good-sized watch at three feet, with either ear, in a quiet room? (9.) Does the pupil fail to breathe properly through either nostril? (10.) Is the pupil an habitual mouth-breather? If an affirmative answer is found to any of these questions the pupil should be given a card or letter of warning to be handed to the parent. The board recommends that examinations on this plan be made in every school in the State.

GENERAL.

The King's Hospital Fund.—King Edward's hospital fund for freeing London hospitals of debt has received endowments from Lord Mount-Stephen and Lord Strathcona, and is now producing $50,000 annually, which sum is likely to be increased. The principal amounts to fully $2,500,000.

Virchow Very Low.—Professor Virchow, the famous scientist, appears to be near his end. The German Medical Weekly regrets to announce on information obtained from the physicians who are treating him that the improvement of last week has not been maintained and that his strength is unmistakably failing. The professor is at Harzburg, in the Harz Mountains, and no one except his family and the doctors can see him.

The Jersey City Hospital.—The Jersey City Police Commissioners adopted a resolution last week transferring the management of the City Hospital to the new Board of City Hospital Trustees. The board was created by legislative enactment last spring, with power to construct a $300,000 hospital building. Dr. John D. McGill, president of the Hudson County National Bank, opposed the transfer. He charged that the Hospital Act was unconstitutional.

Reform in California.—In nominating Dr. George C. Pardee for Governor the Republicans of California appear to have risen far above the level usually attained in the political affairs of that State. He is distinctly a reform candidate, his nomination having been brought about as one of the results of exposures involving the Gage administration. Dr. Pardee is a physician of excellent education, which he acquired with high honors, both in this country and in Germany. He first attracted public attention as a member of the Board of Health in Oakland, and later as a councilman. If elected it is hoped that he will immediately institute much needed reforms in the administration of affairs relating to public health and sanitation. The continuance of plague within the United States is one of the evils directly traceable to the present maladministration.

Women Physicians in England.—The annual distribution of prizes of the London School of Medicine for Women took place in August before a large assemblage. The value of the instruction given and the character of the students trained both commended themselves to the public at large. The governors of the endowed charities of St. Dustan's in the East gave a scholarship of £60 a year for three years, and other scholarships of equal and some of greater value were also distributed. The work of the school has steadily progressed during the past year. A due proportion of those students who have presented themselves for examination have passed, and many of them have accepted important appointments, not only in England but in other parts of the world. Two new appointments of house surgeon and house physician have been made at the Royal Free Hospital; both have been filled most successfully by women. Abroad, much has been done by the students of the hospital. The South African Hospital Commission was partly constituted by Miss Waterson, M.D., and the Hon. Ella Scarlett, and did valuable work. Miss Scarlett received the appointment of medical officer of health to the refugee camp, Orange River Colony, and a large number of old students have received public appointments during the year.

Self-Experimentation among Physicians.—The Evening Post last week had a very suggestive editorial in connection with the recent experiments of physicians upon themselves in the production of disease. The experiment of Dr. Manson upon his son, who has since unfortunately died, might perhaps also find a place in the list. The editorial says: "This willingness to be experimented upon for the benefit of humanity raises a problem in morals which has never been satisfactorily solved. That a man has a possible right to benevolent suicide seems to be indicated by the admiration with which we remember certain martyrs of science—for example, the lamented Dr. Lazear, who voluntarily incurred yellow fever at Havana in order to prove the theory of inoculation by mosquitoes. It should be remembered, however, that in such cases the taking of a desperate chance is morally different from accepting the certainty of death. Very rarely is martyrdom to science so complete and untainted by personal ambition as it was in Dr. Lazear's case. Some of the most striking instances of this kind of courage should be recorded quite as much to the credit of wrath as to science. There is, in fact, a kind of fanaticism which will go to all lengths to demolish a detested theory or to undo a rival scientist. Dr. Koch seems to have the quality of arousing this kind of animosity. Everybody will recall the young professor who drank before his clinic the strongest preparation of the cholera bacillus that the art of man could make. His survival proved at least that he had more than the average German digestion. More recently Dr. Garnault of Paris inoculated himself with bovine tuberculosis in order to prove, against Koch, that it is transmissible to the human organism. His experiment is likely to prove at most that it is transmissible under conditions which practically never occur, and the surgeon's knife will probably save the experimenter from the natural effects of a too successful demonstration. An interview with Dr. Garnault, in a recent Figaro, shows that he has a most stoical contempt of death and a most unstoical contempt of Dr. Koch. His risk is assumed rather to prove the German savant an impostor than to advance the cause of medical science. If he should die of the superficial tuberculosis which he has succeeded in producing, he could be called a martyr to science only in the sense in which a willing but unsuccessful duellist can be called a martyr to honor. The value of his experiment would, of course, remain, but the affair at once illustrates the curious complexity even of heroic motives, and recalls the saying of Professor Lounsbury's, that too little credit has been given to wrath as an incentive to research."

Professor Virchow's Museum.—Virchow's political activity necessitated his giving up in 1849, at twenty-seven years of age, his duty as prosector of the great Hospital of the Charité, which at the same time serves the university clinics. He was, however, appointed to the professorship of pathological anatomy in Würzburg, and returned thence in 1856 to Berlin as professor. Since that time he has collected and preserved the vast and scientifically interesting material of the completed sections and provided each preparation with a superscription. Thus is a treasure of 23,066 preparations accumulated and set up in a museum. A similar institute of the same nature does not exist in the world, and the well-known and doubtless as prominent Musée Dupuytren in Paris, in comparison with Virchow's creation, is but a fragment. The pathological museum will become for medical men a scientific place of pilgrimage and each one may derive his instruction therefrom, whether he be occupied in practical work as a medical man, or whether his mind be directed towards the general standpoints of medicine, as investigator or as guardian of the sanitary conditions in the state. How completely throughout and in what minute detail the pathological museum has been planned can be seen by the fact that besides the apartments for the director, assistants, and draftsman, microphotographic rooms have been built, workrooms provided for the mounting of preparations and their temporary conservation, and even a bathroom furnished for the laboratory attendants. Self-dependent as in certain respects this new pathological museum is, it yet stands in organic and local connection with the pathological institute, which, like the whole Hospital of the Charité, will be remodeled in compliance with modern demands, and will also in a short time be rebuilt in new and more splendid form. Besides the relation which exists between the pathological institute and the clinical divisions of the hospital, because the necropsies are performed there, various physical, clinical and bacteriological sections will be added separately in the new institute for scientific purposes. All this has been already taken in hand according to plans of the old master Virchow.

Obituary.—John Henry Longnecker, M. D., a retired physician, died recently in his home, on Union Avenue, Islip, L. I., aged eighty years. He was a native of Lancaster, Pa., and was graduated from the Jefferson Medical College, Philadelphia. He practiced his profession in New York, Brooklyn, and for many years at Hudson, Mass. During the war he was assistant surgeon at Annapolis Hospital, and treated among others Union soldiers who had been confined in Libby Prison. For a time he was connected with a Pennsylvania regiment as surgeon. He is survived by a widow and six sons.

Dr. St. George W. Teackle, for many years one of the leading physicians of Baltimore, died August 30 in that city.

Dr. Reuben Morris Sutphen, one of the oldest physicians of Newark, N. J., died in the home of his son, Dr. T. Y. Sutphen, at Short Hills, N. J., September 3, at the age of eighty-three years. He was born near Princeton, N. J., April 25, 1819. His boyhood days were spent at Ontario, N. Y. Settling in New Jersey in 1845, he entered the office of Dr. Voyht of Freehold, later attending the Medical Department of the University of New York, from which institution he was graduated. He practised in Walworth, Wayne county, N. Y., before settling in Newark in 1868. He was a member of the Newark Medical Association, the Essex County District Medical Society, and the New Jersey State Medical Society. He was also prominent in religious circles, and for many years he was an elder in the South Presbyterian Church. He is survived by a widow and several sons.

Fatal Bite of a Weasel.—A milk dealer in Paterson, N. J., was annoyed by weasel that had taken possession of his barn. On August 21st during his attempts to capture the little animal he was severely bitten. About September 1st he developed symptoms of hydrophobia from which he died on the 4th instant.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

HISTORY OF ECZEMA—KERATITIS, THE BOWMAN LECTURE BEFORE THE OPHTHALMOLOGICAL SOCIETY.

The British societies before adjourning for the summer held a number of interesting meetings. At two of them well-known authorities from the Continent, Unna and Fuchs, were entertained as guests, and for the benefit of our readers their papers are liberally embodied in these notes.

On May 22 Dr. Unna of Hamburg read a paper entitled "The History of Eczema in the Past Century in England" before the Dermatological Society of Great Britain and Ireland. He pointed out that 100 years ago eczema as now understood did not even exist. S. H. Jackson in his "Dermopathology," translated into German in 1794, did not mention eczema. It was true that Aetius had in past times employed the term, but for a different affection. Willan (1798-1815) grouped together a number of cases of vesicular dermatitis due to trauma of chemical or physiological nature—e. g., plasters, vesicants, mercury, etc., and cases due to sun exposure (heat eruption). For this class he chose the name "eczema." It was clear that observation of the cases of mercurial dermatitis gave the chief impulse to this generalization and influenced the description given, for Bateman recommended readers who wished to understand eczema to study works by Alley, Butter and others on mercurial disease. So it was plain from the definition he gave that for Willan eczema was a traumatic, vesicular, non-infectious malady, and clearly Willan was not the originator of the eczema conception of to-day. Had his idea been followed we should now, after 100 years, possess under the name of "eczema" a most instructive and important chapter on traumatic dermatoses. The single inconsequence in the otherwise clear eczema chapter of Willan-Bateman was the admission—in addition to the two forms, eczema solare and eczema rubrum (hydrargyria)—of a third variety, eczema impetiginosum, partly to cover those cases that, starting, for instance, from a blistering plaster, spread over the body, and partly those which in the form of grocers' and bricklayers' itch belonged to Willan's impetigo figurata and so to the eczema of to-day. This form really included more on etiological than morphological grounds, and, following Willan's definition, clearly did not belong to the class of eczema. The mention of these chronic occupation diseases, that showed diffuse inflammation and notable itching, and that were hard enough even to separate from eczema, proved in fact an Achilles' heel. Plumbe (1827) was a strict Willanist, stricter than Bateman, for he rejected Bateman's third variety, eczema impetiginosum. He was the last true follower of Willan, not only in England, but elsewhere. The English authors who followed came more and more under the influence of the rising Parisian school of dermatologists, and notably of Rayer. Following the teaching of Biett, that Willan had erroneously only described acute eczema and had overlooked the chronic, Rayer added to the three varieties of Willan-Bateman—which, by the way, he largely remodeled—a fourth, namely, chronic eczema. This was an entirely new creation, pieced together by the master mind of Rayer from separate details that in Willan lay scattered principally in the chapters on Impetigo and Porrigo. Rayer's description was based on 11 cases of his own. He was the first to note and to describe the regional modifications, in which he has been since followed by most authors. This great service would have had far greater value had Rayer not mixed up his new disease with Willan's acute eczema and taken the latter as its "acute beginning." This unhappy amalgamation was due to the fact that Rayer could not have studied Willan properly. Willan and Rayer were describing entirely different affections, and it was the failure of Rayer to appreciate this that led to most of the subsequent confusion. As a result of the French remodeling of English views on eczema it happened that a traumatic, rare, acute, not itching affection became converted into one that was non-traumatic, common, chronic and itching. The naval surgeon J. Green (1835) was the first victim of the confusion in England. He appeared to follow Willan in that he spoke of traumatic eczemas, and even introduced a new one caused by sulphur, but departed from him entirely in saying that such eczemas differed from the proper or constitutional forms in their easy curability. Dr. Unna next referred to the early work of E. Wilson (1842), showing that it was just a selection from other authors, which, owing to its great popularity, served to perpetuate the existing confusion. A. T. Thompson (1850), who edited Bateman's work, was a decided Willanophile, but he showed the influence of the French school when he spoke of an outer and an inner (i. e., constitutional) eczema. T. M. Neligan (1852) drew attention to the fact that eczema of the face and scalp in children appeared in the strong as well as in the weak, in the scrofulous and in those not so tainted, in the well nourished and in the reverse. And yet he fell back on a constitutional cause for this type. Meanwhile a great step forward was taken in France. Devergie pointed out that Rayer's eczema by no means always commenced with Willan's clear-clustered vesicles and that it often did not show any vesicles in the whole of its course. Hence he separated the two and gave to Rayer's form four fresh symptoms—redness, violent itching, a secretion that stained and stiffened linen, and a *status punctatus*—i. e., fine holes in the skin from which serum poured. It might be thought that with the separation of Willan's and Rayer's eczema and the entire removal of artificial inflammations, even as the "acute beginning" from the latter, the *status quo ante* had been again restored. Hebra, who appeared in the "sixties," had on English dermatologists even more influence than Devergie. On the strength of very insufficient experiments with croton oil and other irritants he managed to reintroduce into the eczema chapter the traumatic dermatoses that Rayer and Devergie had so carefully rejected, and his great authority covered for many years all that was untrue and incongruous in the muddle called eczema. E. Wilson was entirely under Hebra's influence, and this in spite of the fact that he was the first to introduce a chapter on traumatic skin affections. He freed himself, however, entirely from Willan in that he held, with Devergie, the vesicle as an inconstant, non-essential feature. T. Fox (1873) believed himself a Willanist, and in consequence announced his intention to oppose the authorities of his time. But his work was full of incongruities. He was no true Willanist, only the greatest Willanophile among moderns. M. Anderson (1874) was the first, after Hebra and Wilson had already and occasionally recognized the scaling patch as the initial symptom of eczema, to declare it to be the most important form of commencement. Dr. Unna here pointed out how unfortunate it was that Rayer called his disease "eczema," and how unfair it was to ascribe to Willan the confusion that would have been avoided had his ideas been followed. Dr. Unna then passed on to consider briefly his own work. Hitherto Willan's eczema alone had possessed a clear etiology, while that of Rayer was the plaything of unproved hypotheses and unfruitful theories. In 1890, before the British Medical Association in session at Birmingham, Dr. Unna had declared Rayer's eczema on clinical grounds to be a parasitic affection. After 12 years in which he had confirmed his theory he had the satisfaction of knowing that in England Morris, in America Elliot, in France Leredde, and in Germany Bockhart, had in great part accepted and enlarged his views. Hence the future study must lie in bacteriological domains and the new century could already record a start. Possibly the progress in chemistry and physiology might be of even greater importance. Clinical study alone could do no more. It must proceed hand in hand with microscopical, bacteriological and chemical investigation if the future development of the eczema conception was to be possible.

E. Fuchs of Vienna read the Bowman lecture before the Ophthalmological Society June 13, 1902. Bowman's name, said Professor Fuchs, would be forever connected with the development of anatomy, physiology, and ophthalmology, and as far as the eye was concerned Bowman's membrane and Bowman's tubes would perpetuate for all time his name in the memory of the student of medicine. In discussing keratitis the lecturer declared his intention of confining himself to the consideration of recent disease, showing what anatomical changes corresponded with visible signs, such as opacity, loss of brilliancy, etc. The transparency of the cornea allowed a closer comparison between clinical and microscopical appearances in this than in any other structure, especially with the aid of a lens or corneal microscope. Diffuse opacity would be found to correspond with an infinite number of minute gray points representing swollen corneal corpuscles, aggregated lymph-cells beside them, or accumulations of corneal corpuscles in lymph-spaces. The surface, from being smooth and brilliant, became dull and stippled at the slightest disturbance of underlying tissues corresponding with a change in the epithelial layer. In the normal structure the nutrition of the epithelial layer was provided for by osmosis from the corneal tissue through Bowman's membrane, and the regeneration of cells by division of the basement and middle layers. In health this was slow, as evidenced by the scarcity of dividing nuclei. On account of the exposed position of the corneal epithelium, its pliant, delicate nature, and its loose attachment to subjacent structures, abrasions were common, and rapid and extensive exfoliation took place in inflammation. Its vitality was further lowered by the low temperature resulting from surface evaporation and its dependence for nutrition on non-vascular tissues. This process of osmosis was its chief defense and the integrity of the epithelium was the chief defensive agent against the intrusion of microbes. The close and persistent growth of these surface cells tended to level all irregularities, producing a thicker layer where there was loss of substance and a thinner one over any protrusion. This was illustrated by drawings, as was also the rapid development of these cells, preventing direct union of the tissues after a cataract extraction of four days' standing, and having already penetrated the wound as far as Descemet's membrane. A drawing was shown illustrating a still further development in which the superficial corneal epithelium had penetrated to and lined the entire anterior chamber, covering both the iris and back of the cornea. This drawing was from a cataract extraction of several years' standing. This condition practically represented cyst of the anterior chamber; the tension was raised. Four such cases had come under the lecturer's observation, and he suggested that this might be the explanation of increased tension after cataract extraction where there was no other cause of glaucoma. There also occurred small epithelial cysts in the root of the iris continuous with the surface epithelium and representing the blind end of its invagination. These would in time develop into iris-cysts, and were, except in distribution, analogous to the chamber-cyst just mentioned. Cysts of the iris occurring after penetrating wounds were always due to this kind of intrusion of the external epithelium. Another instance of this intruding tendency was furnished by cases of old leucoma; in such cicatricial tissue there often occurred calcareous deposits which consolidated into calcareous plates. These, at first intimately connected with the contiguous tissue, presently separated from it by shrinkage and lay in it like a foreign body. A drawing showed the surface epithelium penetrating to this space, surrounding the plate, and effecting its separation. Another drawing showed the process nearly complete, the epithelium on the outer aspect having necrosed, while on the deep surface it separated the mass from the living connective tissue, thus at the same time protecting the eye from external agencies by a continuous epithelial layer. The vital energy of this epithelium was greater at the periphery in proximity to the nutrient vessels. When uniformly affected it was speedily thrown off in the center, but grew exuberantly at the margin, as in keratomalacia and neuroparalytic keratitis, and most strikingly in marginal ulcers where the epithelium was seen to push quickly towards the bottom of the ulcer peripherally, whereas the central margin remained bare and infiltrated. On this account many ulcers tended to progress towards the center but not towards the margin as in fascicular keratitis. Disturbance showed itself by dulness (unevenness) or haziness (opacity) of the epithelium; where the epithelium was raised in places the small vesicles appeared if the subjacent cornea was clear. The opacity was due to abnormal fluid either between or within the cells. It commonly occurred between the cells in glaucoma (edema of epithelial layer), separating first the basement and then the superficial cells, and might form vesicles. A figure from Griéff showed this and swelling of the cells from imbibition of fluid. The cells might burst and leave depressions while the swollen ones projected, thus producing an uneven surface. The stippled appearance in glaucoma, iridocyclitis, and interstitial keratitis was thus acounted for. The entire layer might be affected, producing a hemogeneous mass which separated. Absorption occurred quickly, even within 30 minutes, under eserine. The superficial cells separated and fell off. In neuroparalytic keratitis the desquamation was specially rapid, being due largely to exsiccation, but it occurred from nerve changes in man where this was prevented. The change occurred principally in the center while there was proliferation at the margin, the cornea being left uneven with a stippled appearance. Only the basement layer might be left and the cells altered in shape, being long, short, or oblique, or the loss might be total, as in conjunctivitis and inflammation of other mucous membranes (desquamative catarrh). This condition endangered the cornea by facilitating the entrance of micro-organisms and conjunctival disease was often followed by corneal disorder. Change in the epithelium was the cause of such disorders of vision as colored halos round lights, as in glaucoma and cocaine instillation, especially where this had been long continued or the eye had been left exposed. The epithelium became opaque and dull and desquamated. The lecturer never entrusted patients with cocaine, particularly when suffering from keratitis. Thinning of the epithelial layer occurred from pressure of the lid, the surface remaining smooth, as it did in atropy from insufficient nutrition, the number and size of the cells being diminished. Where calcerous deposits occurred in corneal cicatrices bacteria might invade the cornea, causing necrosis. This was the explanation of the rapidly destructive ulcers in old leucomas (atheromatous ulcer, sequestering cicatricial keratitis) resulting in perforation and panophthalmitis. This might also occur from within, as in corneal degeneration. Local areas of the kind resulted from irritation or might develop after cataract extraction, producing inflammatory areas with lymph-cells which might ulcerate or disappear. Exsiccation, if superficial, produced opacity; if deep, xerotic keratitis. To sum up the causes of these superficial changes, they might be due to conjunctival disease causing damage by secretion—e. g., gonorrheal ophthalmia; to deeper disease in the tissues, as in glaucoma, iridocyclitis, panophthalmitis, through alterations in pressure, circulation and quality of lymph; or to degenerative changes in the cornea, which varied much with the stage and malignancy of the pathological process. The dotted appearance in keratitis as seen with a lens differed from the haziness due to changes in the media or deposit of fibrin at the back of the cornea, which always appeared uniform, this appearance in the cornea being only produced by the imbibition of fluid. Striated keratitis was due to swelling (after cataract extraction) producing folds at the posterior surface of the cornea. Swollen tissue on the surface might be clear and free from ulceration, though necrotic. The bluish swelling in newly born children and in glaucoma were probably due to imbibition. The slow changes in old men (after sixty years of age), senile sclerosis, producing ultimate blindness, came from abnormal liquid in the cornea which impeded the lymph flow, probably due to a change in the general nutrition or to increased permeation of the aqueous humor into the cornea. A change in the epithelium was superadded, and the slow affection of both eyes suggested some general agent. A uniform infiltration of the cornea with lymph-cells produced a uniform opacity. An injurious agent in the aqueous humor, as in commencing panophthalmitis or iridocyclitis, caused increased circulation at the margin, two currents of lymph-cells emanating from the vessel of the limbus and the anterior ciliary vessels which resulted in an annular thickening. The entire cornea might be affected from a wound or ulcer, the change clearing up, concentrating, or becoming marginal. In the latter case, a ring-shaped thickening due to infiltration 1.5 mm. in width and about this distance from the limbus occurred, and was a rare consequence of ulcer or panophthalmitis.

SOCIETY PROCEEDINGS.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eighth Annual Meeting Held in Washington, D. C., June 2, 3 and 4, 1902.

(Conclued from page 431.)

Second Day—Tuesday, June 3.

Report of a Case in which Laryngeal Symptoms Complicated Purpura Hemorrhagica.—Dr. Joseph T. Gibb of Philadelphia reported this case. The patient, a man of forty-two years, had been well up to three weeks before admission to hospital on November 3, 1901. At that time he had been vaccinated, and 10 days later the legs became swollen and a hemorrhagic rash appeared upon them. About this time there was a bloody discharge from the bowel. There were subsequent crops of hemorrhagic spots, and eventually the urine became bloody. On December 19 the speaker had first seen him because of an attack of dyspnea and crowing respiration that had existed for 36 hours. The entire larynx was red; the breath sounds were weak and there was marked laryngeal stenosis. On the following day after vomiting much chocolate-colored mucus the breath became very normal, and the larynx then showed less infiltration and the surface of the mucous membrane was covered with fluid blood. An application of cocaine and adrenalin gave marked but temporary relief, the hemorrhage recurring, and the patient dying the next day of exhaustion. Evidently the dyspnea was due to hemorrhagic edema of the submucosa of the larynx, similar to the subcutaneous purpuric spots in simple cases. The relation of the illness to the vaccination was interesting but by no means clear. The possible relation between the adrenalin and the last hemorrhage was also worthy of consideration.

Hemorrhage in Nasal Operations.—Dr. John O. McReynolds of Dallas, Texas, instead of reading the full paper on this subject, reported one case of severe hemorrhage occurring after the use of adrenalin. The case was that of a man of 25 years, from whom he removed without difficulty an exostosis situated rather high in the nose. The hemorrhage occurred almost immediately after the patient's leaving the office, but he did not see the man for about two hours, and then he was almost exsanguinated. The hemorrhage was controlled by packing the posterior nares.

Dr. W. Freudenthal of New York exhibited a device which he used for controlling hemorrhage during and after operation. It consists of a double ice bag which is applied like a saddle over the nose, and is strapped around the head. In addition, he obtained valuable assistance from the use of stypticin internally.

Dr. J. A. Thompson thought the hemorrhage was due to injury of one of the small arteries of the septum. Hemorrhage could be much more easily controlled by the use of cotton saturated with a styptic than by the use of gauze.

Dr. J. A. Stucky said that adrenalin should be used in the strength of 1 to 6000 or 8000. He was accustomed to control nasal hemorrhage by the use of a little strip of dental rubber over which is placed a piece of Bernay's sponge or splint.

Dr. H. Bert Ellis of Los Angeles, Cal., said that according to his experience hemorrhage was much less likely to occur ofter adrenalin alone than after the combination of adrenalin and cocaine. Patients put on the chloride of calcium prior to operation were rarely troubled with secondary hemorrhage.

Dr. M. A. Goldstein said that it was his custom to saturate the gauze with oil or melted vaseline in order to make it impervious, and hence, suitable for controlling hemorrhage. He believed the Simpson modification of the compressed cotton splint, shaped in the form of a nasal plug, was a very satisfactory means of controlling nasal hemorrhage.

A Physiological Statement of some of the Symptoms of Mouth Breathing.—Dr. William L. Ballenger of Chicago presented this paper. He said that examinations of guinea-pigs which had been kept in an atmosphere saturated with starch powder and nitrate of silver showed a remarkable thickening of the lining of the air vesicles, and this had led him to suspect that possibly a pathological change in the air vesicles might in some way cause an auto-intoxication which would find expression clinically in mouth breathers. In this class of cases the respiratory function of the nose was lost, and he did not doubt that this loss resulted in certain changes in the respiratory apparatus of the lung, which impaired its capacity to carry on the interchange of gases. Faulty metabolism necessarily resulted, and carbon dioxide accumulated in excess in the blood, and then acted as a violent poison to the leucocytes. The scavengenial functions of these cells are thus impaired and the "half way" products of oxidation are left to circulate through the system. Oxygen being taken up in deficient quantity still further adds to the toxic properties in the blood and gives rise to the nervous and developmental phenomena so familiar in mouth-breathing children.

It seems rational, therefore, to him to assume that the symptom complex of mouth breathers is largely due to some change in the air vesicle walls of the lungs, whereby the normal interchange of gases (oxygen and carbon dioxide) is interfered with.

Dr. Eugene L. Vansant of Philadelphia thought the cases in which the respiratory function was abolished were very rare. In a case of severe adenoids in a child asleep there would still be found nasal respiration. If these persons were true mouth-breathers there would not be much difficulty; it was because they remained nose-breathers that nervous disturbances arose. There was not the slighest doubt that there was immense thickening of the epithelial lining of the pharynx and larynx, but he was disposed to doubt that such thickening extended to the air cells except in severe cases of long standing.

Dr. J. A. Thompson said that the interchange of gases was practically an osmosis, and it was well known that this would not take place through a dry membrane. Where nasal respiration was abnormal the pulmonary alveoli became unnaturally dry, and this was probably one of the features in the deficient osmosis and oxidation of the blood.

Dr. W. Freudenthal of New York said that some years ago he had made a number of experiments on this subject, and had found that children with pronounced adenoids gave off about one-ninth or one-eighth of the normal quantity of moisture. Four months after the removal of the adenoids one boy gave off about the normal amount of moisture from the nose. If the nose failed to supply the moisture to the air this would be supplied for a time by the pharynx, but the latter would soon fail also.

Dr. Ballenger, in closing, said that it was not necessary to have complete nasal obstruction in order to produce the pathological conditions discussed in his paper. The point made by Dr. Thompson seemed to him very well taken.

Electric Light in Diseases of the Respiratory Organs.—Dr. W. Freudenthal of New York read this paper. At first he had hoped to affect the deeper tissues by the actual passage of the bactericidal rays into them, but it was found, that these just penetrate the epidermis and cutis. In studying the therapeutic effects of the electric light one must distinguish between the incandescent and the arc light. The author said that he had been experimenting on this line as early as 1889. He had found the arc light preferable even for the larynx. He made use of the ordinary search light, in front of which the patient sits at a distance of six or eight feet. Most of the screens suggested for removing the heat were objectionable because they absorbed in large amount certain other important rays. He used the electric light in the treatment of both laryngeal and pulmonary tuberculosis, and although he had never cured an advanced case by this means the treatment was of value just as was the use of morphine, heroin or hydrotherapy; indeed, the electric light treatment stood on the same level as hydrotherapy, but was superior to the latter because it relieved pain and facilitated expectoration. Because of the neurotic element in cases of hay asthma the results of the electric light treatment had been even more conspicuous.

Dr. H. Holbrook Curtis asked the effect of direct sunlight on laryngeal phthisis.

Dr. Robert Levy said that he had never been able to satisfy himself from the published reports that the application of sunlight or artificial light was an important adjunct to the treatment. Equally good results, he thought, could be obtained in high altitudes where sunlight was most abundant.

Dr. Freudenthal said that he had applied sunlight and was accustomed to advise his patients to expose themselves to sunlight, preferably while undressed.

Symposium on Diseases of the Accessory Sinuses.—Dr. Robert C. Myles of New York introduced this symposium by a general paper. He said that the chief functions of the accessory sinuses were to supply fluid secretion, warm the air passing through the nose and act as a sounding board. In the majority of cases empyema of the antrum of Highmore was easily diagnosticated, and he valued highly as one of the aids for this purpose the method of transillumination. The passing of a trocar through the middle or inferior meatus would often confirm the diagnosis. Where there were polypi, thick mucus and colloid material this method would fail. He believed he had been the first to insist upon not employing the radical surgical treatment of antral disease by repeated and severe curettage. Such treatment often aggravated the condition. In frontal sinus cases the diagnosis was usually made with difficulty, yet injection of normal salt solution often cleared up the diagnosis. The morning headache was generally significant, and was due to retention of the gases above the thick secretions which flowed over the mouth of the infundibulum on assuming the erect posture, and was gradually relieved by the pressure of the gas, forcing the secretion down into middle meatus. Total obliteration of the sinus yielded brilliant results where the sinuses were small; in other cases part of the anterior wall should be removed and the mucosa curetted, a large opening being made from the sinus to the nose. The diagnosis of ethmoidal disease was usually very plain. A soft silver probe was of great value in ascertaining the condition of the cells. All polypoid tissue should be removed and also the floors of the sinuses. Disease of the sphenoidal cells was easily diagnosed, and the results of treatment were satisfactory. Complete removal of the posterior end of the middle turbinal would usually demonstrate the point from which pus made its exit. Extensive removal of the anterior wall and repeated excision of the membrane forming over the opening usually cured these cases.

Ethmoidal Cells.—Dr. Eugene L. Vansant of Philadelphia presented this paper. He said that these cells varied greatly in size, number and shape. The anterior cells usually communicate with the middle meatus by several ostia. The posterior openings communicate with the superior meatus. Occasionally the roof of the maxillary antrum contains one or more cells. The situation of the ethmoidal cells rendered them particularly liable to involvement by inflammatory processes extending from the nasal passages. Of the new growths found here myxomata were the most common. Catarrhal and suppurative inflammations of these cells most commonly required attention. Their existence was frequently unsuspected. Catarrhal inflammation was usually associated with an acute rhinitis or with influenza. This form of inflammation usually terminated in resolution. Most cases of suppurative ethmoiditis did not come under observation until already chronic. Granulations and polypoid processes not infrequently spring up in the mucous membrane. In most cases the patient complained of constant pain in the forehead or temporal region in addition to the discharge. Drainage was rarely perfect, and the symptoms varied somewhat according to the amount of secretion retained. The prognosis was very uncertain. All intranasal obstructions and nasal polypi must be removed. It was ordinarily best to remove the anterior end of the middle turbinal. If the posterior cells were involved the entire middle turbinal should be removed. If the cells were found necrotic or filled with granulations, a thorough curettement should be done, and a light packing inserted to avoid hemorrhage. Syringing the cells with hot air was also a useful expedient. Hot water applications over the root of the nose and face added to the patient's comfort.

Sphenoidal Cells.—Dr. Cornelius G. Coakley of New York read this paper. He said that the first reference he had found to this affection was in connection with an autopsy record in 1872, and Schaffer, in 1885, had been the first to detect and treat this condition in the living. Influenza or severe rhinitis were most commonly responsible for acute inflammation of these cells. There were usually fever, rigors and headache, and sometimes pains referred to the back of the orbit were the only symptom complained of. Examination of the nasopharynx would usually show a thick, tenacious mucus, but it could not be seen to come from the sinus. The nasal mucous membrane should be kept thoroughly contracted by the frequent use of cocaine and adrenalin, and the nose should be irrigated with saline solution having a temperature of about 120° F. If this treatment did not give relief some more radical measure would be demanded. In the chronic cases examination of the anterior portion of the nose might not show any pus, but pus would usually be found issuing from the posterior naris. By means of a fairly stiff graduated copper probe he endeavored to enter the sphenoidal sinus. At the depth of 7 cm. the end of the probe would usually reach this sinus, and on entering the sinus it could be pushed one to one and a half centimeters further. A canula was then passed into the cavity and the latter irrigated with warm sterile normal saline solution. If the fluid running out were pus-laden the diagnosis was complete. With a Bryan's gouge and curette the anterior wall below the ostium was broken down. Frequently the removal of a part or all of the middle turbinate was required before catheterization and irrigation could be accomplished.

Antrum of Highmore.—Dr. F. C. Cobb of Boston read this paper. He divided cases of antral disease as follows: (1) Empyema secondary to frontal or ethmoidal disease; (2) empyema due to decayed teeth; (3) empyema due to foreign bodies, such as rubber injected by dentists, or to eruption of teeth in or about the antrum; (4) empyema due to obstruction by new growths or polypi; (5) suppuration resulting from tumors and (6) empyema due to syphilis, and resulting in necrosis generally of some portion of the antral wall. The apparent absence of teeth did not eliminate an antral disease arising from diseased roots left behind beneath the gum and often overlooked. Syphilitic empyema was usually diagnosed by the odor and the softening of the bone, and its appearance in the discharge. Antral disease was often confounded with dentigerous cysts. The walls of such cysts were bony and offered the same resistance to the probe as do the walls of the antrum. If on tapping and washing out the antrum a flow of pus occurred within an hour or two, one might be sure that it came from some source outside of the antrum. The operation of Lothrop, throwing open the antrum into the nasal cavity, was probably the best of this class of operations. Better still was the making of a wide opening into the canine fossa, leaving a flap which may be stitched up afterward, and then making an opening so as to secure drainage through the nose. In the latter a wick should be placed.

The Diagnosis and Treatment of Frontal Sinus Disease.—Dr. Lewis A. Coffin of New York presented this paper. In well marked cases there would be persistent frontal headache with tenderness over the orbital region, and examination would show the nasal mucous membrane swollen and boggy and pus probably oozing from the middle meatus. Transillumination would assist in the diagnosis. The chronic cases were not so easily recognized. In many cases an exploratory operation was necessary and justifiable to establish the diagnosis. By the use of a specially devised trephine a bone flap could be readily raised. As primary union occurred after this operation no deformity resulted. Where disease was found drainage should be established by one of several methods. He favored the drawing down of a small rubber tube through the fronto-nasal duct. The closed method was followed by many relapses. For exploratory purposes the opening should be made as near as possible to the median line. The exploratory openings should be situated just over the inner canthus of the eye, and if necessary, the opening should be enlarged at the expense of the inferior wall. The closed method should be used only in cases in which there is obstruction of the fronto-nasal duct which can be easily removed. There was no occasion for establishing drainage through the nose.

The Technic of Frontal Sinus Operations; Report of Three Cases without Nasal Drainage.—Dr. H. Holbrook Curtis of New York presented this paper, but for lack of time only reported the cases and commented briefly upon them. He exhibited a dressing that he had found exceedingly useful in packing these sinuses, *i. e.,* zephyr wool deprived of its fat so as to make it absorbent.

Dr. Curtis also exhibited an electric sinus lamp and a cheek retractor, which he highly recommended. He particularly dwelt upon the necessity of obliteration of the sinus, and said that the fear of a deforming cicatrix was the bugbear of sinus operations. He considered that an operator should understand plastic surgery, do bold work and rely on paraffin and his knife to obliterate the depression and the scar.

Dr. John O. Roe of Rochester presented a series of skulls to show the wide variations in the sinuses, thus emphasizing the necessity of modifying the method of treatment to suit the individual case. Not only were there marked variations in the location, size and direction but in the presence of septa and in their number. In some cases there was almost no frontal sinus, showing the danger of using a drill which under such circumstances, would pass through and injure the meninges. He had devised a curved drill run by an electric motor, an instrument by means of which it was easy to enlarge the natural channel from the frontal sinus into the nose. The end of the drill was protected on one side by a shield so as to enlarge but one side of the passage and thereby avoid a subsequent closure of the passage.

Dr. James F. McCaw of Watertown, New York, spoke of the case of a lady who had had all her teeth extracted eighteen years before coming under observation. Because of a chronic discharge and the presence of roughened bone, an incision was made along the alveolar process, and he was surprised on coming down upon a tooth lying in a cavity of the alveolar process and parallel to it. The tooth was removed and the cavity curetted, and since then there had been no trouble.

Dr. Thomas J. Harris of New York said that in his hands transillumination had proved of very little value in connection with the frontal sinus. In many cases in which pus had been found at operation there had been no darkening at all on transillumination, and in other instances when there was darkening little or no pus had been found. He agreed with Dr. Coffin that in each case one must decide whether the open or closed operation should be selected. He firmly believed that in cases in which it was not possible to find marked disease of the ethmoidal cells, the quickest and most satisfactory results would be attained by doing the open operation, as described by Dr. Coffin. This operation could be done thoroughly, and yet leave practically no deformity.

Dr. Sargent F. Snow of Syracuse said that the symposium had deeply interested him. A large majority of these frontal sinus cases would get well with better drainage into the nasal passages; not that he recommended the internal exclusive operation only in all cases. Quite recently he had discovered that a number of these chronic cases had an underlying syphilitic taint, and that a thorough course solved the problem. Investigation along this line is replete with surprises.

Dr. Thomas H. Farrell of Utica asked for experience regarding the production of distressing symptoms by adrenalin.

Dr. R. C. Myles said that while small frontal sinuses did well under packing, large sinuses would require packing for an indefinite period, and would fill up with granulations very slowly. Some people could be kept very comfortable by having a permanent opening in the antrum.

Dr. C. G. Coakley said he had found the periosteum so much diseased in many cases that he doubted if gentle curettage would suffice. Many patients who had suffered for a long time from antrum disease were greatly improved by a change of air. He had tried the X-ray in cases of disease of the accessory sinuses, but in only one instance had he derived any material aid from this source except for the determination of the presence and size of a sinus. His rule was not to irrigate except at the close of the operation. The packing was changed as infrequently as possible because each change of dressing disturbed the granulating process. By operating near the inner angle of the eye the resulting scar would be almost imperceptible.

Dr. L. A. Coffin said that he could not see how Dr. Roe's drill could be made to pass down into the fronto-nasal duct. In one case in which there was pain and a shadow on transillumination, although no symptoms pointing directly to the nose, on opening the sinus an angioma was discovered.

A Study of Chorditis Cantorum Nodes with Special Reference to Etiology and Treatment.—Dr. Frank E. Miller of New York read a paper on this subject, and illustrated it by lantern slides and by the presentation of several patients, together with a demonstration of the exercises employed in carrying out the treatment.

Primary Treatment of the Uvula and Soft Palate, and Treatment with the Roentgen Ray.—Dr. James F. McCaw of Watertown, New York, read this paper, reporting a case. A screen of block tin with a cylinder of the same material served to direct the X-ray upon the desired part. The diseased surface had healed very satisfactorily under the treatment, the chief feature of the healing process being the comparative freedom from cicatricial tissue, and the slight degree of contraction.

Dr. C. G. Coakley said that he had used the X-ray in a case of epithelioma of the superior maxilla, supposed to be of about three weeks' duration. The man refused surgical operation, and was treated by the X-ray for a week by Dr. William James Morton with some improvement. The patient then went away for a short time on business, and on his return the disease was found to have advanced very considerably.

Dr. Otto J. Stein of Chicago referred to a case of leucoplacia of the soft palate and mouth that he had treated for about three months by the usual method without benefit. Last December the X-ray treatment of the case had been begun by Dr. Pusey, and after two months he had reported the case as a failure. After another period of two months the result was still negative. In Dr. McCaw's case it seemed difficult to determine how much of the good result was due to the surgical measures and how much to the X-ray.

Dr. McCaw said he believed most of the good results that would be obtained from the X-ray in this class of cases would be after excision of the growth. The result would also vary somewhat depending upon whether a "hard" or a "soft" X-ray tube were used.

Report of a Case of Laryngeal Papilloma in a Child, with Remarks.—Dr. C. Dunbar Roy of Atlanta, Ga., presented this report. He had used the method of spraying the larynx with alcohol, as recommended by Dr. Delavan, and with good results in some instances. Various methods of treatment were discussed by the author. He advised that the children should be kept under observation and the milder methods given a fair trial before resorting to surgical intervention. In adults, especially if there were interference with the breathing, the endolaryngeal method might be tried. In children prolonged tracheotomy might be required. Laryngotomy should be done only when all other methods had failed.

Dr. Wendell C. Phillips of New York insisted upon the great care necessary in making the diagnosis of what seemed to be benign neoplasms of the larynx because many of these proved to be malignant. In one such case occurring in his own practice, the growth proved to be an epithelioma in a very early stage. Almost any one observing this growth would have declared it to be a papilloma, yet microscopical examination showed its true nature.

Dr. Thomas J. Harris said he wished to emphasize the value, in prolonged papillomatous formations, of opening the trachea. A case was recalled in which the growths had been removed repeatedly by Dr. Nichols endolaryngeally, and in treating which alcohol had been used unsuccessfully. Prolonged tracheotomy was then resorted to in order to give the part a prolonged rest. This succeeded admirably.

Dr. C. G. Coakley spoke of the similarity in structure of so-called papillomata and syphilitic growths. He was in favor of removing the papillomata in both children and adults as soon as possible. Where the base was broad they were, of course, difficult of removal. It was his habit afterward to make use of alcohol in order to postpone recurrence. Where the attachment was small one removal would often suffice.

Dr. W. B. Shields of St. Louis referred to the case of a physician of seventy years upon which he had operated twice, supposing the growth to be a papilloma from its gross appearance. Microscopical examination showed it to be a sarcoma.

Dr. Roy, in closing, said that he was opposed to the method of Coakley and Phillips of removing a portion of the growth for examination, because this afforded an excellent opportunity for auto-intoxication and for the change of a benign into a malignant neoplasm. He was not in favor of removing a growth in the larynx as soon as found; it was better, in his opinion, to watch it carefully and test the effect of various medicinal applications.

Abductor Paralysis of the Larynx.—Dr. D. J. Gibb Wishart of Toronto, Ont., read this paper, reporting a case of primary abductor paralysis occurring in a person apparently suffering from tabes dorsalis, and giving a history of syphilis. The crico-arytenoid articulation in this case did not seem to be responsible for the position of the cords. The patient was tracheotomized and the tube had been worn for several years with great benefit. Resection of the recurrent laryngeal nerve was justifiable if the disease were steadily progressive. Both iodide and arsenic had been given internally. Dr. Wishart said that he had seen a second case last winter with a history of esophageal stricture in the practice of Dr. H. D. Bruce. The patient refused operation and remained under observation only a few days.

Report of a Case of Epithelioma of Tympanic Cavity and Involving the Mastoid.—Dr. W. H. Haskin of New York reported this case. The patient was a woman of forty-two years, first seen in April, 1901. She complained of intense pain in the left ear, radiating over the head and down the neck. There was also an offensive otorrhea, and a history of a discharge from the ear at intervals for 30 years. A polyp was removed with a snare. Subsequently there had appeared what was thought to be a malignant growth. A complete mastoid operation was done, and pus found in the tip of the mastoid and disease in the squamous portion. Examination of the tumor indicated that it was not malignant. On June 24, the patient was readmitted with a swelling below the ear. The sinuses were opened up, and the granulations removed were then reported to be epitheliomatous. When seen on April 15, 1902, there were large secondary growths around the ear.

Third Day—Wednesday, June 4.

Drawings of the Venous System of the Neck.—Dr. Edward B. Dench of New York exhibited two drawings showing the anatomical relations in a subject recently dissected of the right and left internal jugular veins. Upon the right side the internal jugular was of small size and gave off but one branch, the common lingual and facial trunk, throughout its entire extent. Almost the entire return circulation from the head and face was carried on through the left side. The external jugular and anterior jugular were very large as were also the lingual and facial veins. The thyroid and laryngeal branches were in like manner exceedingly well developed. Almost all of the return current from the head and face passed through the superficial and deep vessels of the left side. The drawings were of interest from the fact that the otologist is frequently called upon to excise the internal jugular vein for thrombosis of the lateral sinus. With a distribution of the vessels such as was shown in the plates exhibited, ligation upon the left side would have been attended with considerable difficulty, and would only have been efficacious had all of the collateral branches of the vein been secured. The plate was presented in order to bring to the attention of the society the very marked anomalies which might exist in the venous circulation in this region.

Specimen of Tubercular Larynx.—Dr. Thomas H. Farrell of Utica presented a tubercular larynx obtained postmortem from a case that he had observed at intervals for five years. The ulceration was found to encircle the larynx with the exception of a small strip on the posterior part of the body of the cricoid. The specimen was interesting because in spite of the long period of infection the posterior commissure was not involved, and the appearance bore considerable resemblance to syphilis.

Outfit for Mastoid Cases.—Dr. Wendell C. Phillips of New York said that about two months ago, at the suggestion of Dr. J. F. MacKernon of New York, an outfit had been prepared by Van Horn & Co. of New York for use in mastoid cases. This, as modified by himself, was exhibited to the society. The outfit was kept in stock, and could be procured on telephone order or on prescription. The outfit consisted of all necessary appliances, dressings and medicines necessary for any mastoid operation.

Pus Examination in Middle Ear Suppuration.—Dr. Phillips also presented this paper. He said that modern practice favored the routine bacteriological examination of all cases of suppuration of the middle ear; this examination to be made immediately after paracentesis so as to eliminate organisms subsequently introduced from without. The micro-organisms found their way into the middle ear through the inflamed Eustachian tube. Some of the most virulent of these organisms were frequently found in the Eustachian tube, and even as far as the antrum without any attendant morbid process. It had been demonstrated that they might even be found in the circulation without giving rise to pyemia or septicemia. From these facts it was evident that other factors, such as alterations in the resisting power of the patient and in the nature of the pabulum on which they live, must be necessary to excite a morbid process. Several varieties were apt to be found in the same specimen, and hence it was the rule for the bacteriologist to state which organism predominated. Some of the organisms found in the pus from middle ear disease are: The micrococcus lanceolatus, the pneumo-bacillus of Friedlander, the streptococcus pyogenes, the staphylococcus pyogenes aureus, albus and citreus, the Klebs-Löffler bacillus, the tubercle bacillus, the gonococcus, the bacillus of influenza and the diplococcus intracellularis meningitis. In the examinations that he had had made he had been surprised at the frequency with which the last named bacillus had been present. In one of his cases the smegma bacillus had been mistaken by the first examiner for the tubercle bacillus. Many clinicians had reported that in the cases in which the pneumococcus was present complications were very apt to arise, and while this was true his experience indicated that the staphylococcus, either alone or in combination, was the most virulent.

Dr. W. H. Haskin of New York said that in a case which he had under observation he had found time and again smegma bacillus, and had been impressed with its close resemblance to the bacillus of tuberculosis. However it was rarely if ever found singly; the tubercle bacillus was very rarely found in middle ear disease, and he believed in many of the reported cases this error had been made of confounding the smegma bacillus and the bacillus of tuberculosis.

Dr. E. B. Dench said that an early bacteriological examination in an acute case proved very helpful in making a prognosis, particularly as regards mastoid complications and infection of the lateral sinus. They had found at the New York Eye and Ear Infirmary that in cases of streptococcus infection there was very apt to be mastoid involvement. In these cases it was now their practice to make no effort to abort the mastoid inflammation except by incision of the drum. If the case did not promptly show signs of improvement the mastoid was at once opened. Mention was made of a case in which the symptoms had developed within a few hours, and the examination showed a streptococcus inflammation. Only one ear was affected at first, and the other drum membrane appeared perfectly normal, yet within two hours the membrane of the second ear bcame inflamed, and streptococci were found on this side also.

Dr. M. D. Lederman of New York said that he had had examinations made in several cases of chronic suppuration, and the bacillus of meningitis had been found. The pathologist did not attach any special significance; where there were symptoms pointing to inflammation of the bony structure in these cases it was well to operate early.

Dr. John M. Ingersoll asked what was the effect of the colon bacillus in these cases?

Dr. C. R. Holmes of Cincinnati said that the importance of such examinations could not be denied, yet unless such examinations were made by experts the results would be misleading. They should be made a matter of routine.

Dr. Phillips, in closing the discussion, said that if doubtful about the advisability of doing a mastoid operation, the finding of numerous streptococci should decide in favor of immediate operation. He had had almost no personal experience with colon bacillus infection in these cases.

Case Showing Deformity After Double Mastoid Operation.—Dr. C. R. Holmes of Cincinnati presented a lady to show the deformity left after a very extensive double mastoid operation done five years ago.

Two Cases of Mastoiditis, One Resulting in Thrombosis of the Cavernous Sinus, the Other Complicated with Tumor of the Cerebellum Simulating Abscess.—Dr. Ewing W. Day of Pittsburg read this paper. The first case was that of a child of eleven years admitted to the hospital on January 12, 1901, in a septic condition. It was at once operated upon, but by the following day the temperature had risen to 104° F. A pocket of pus was found and evacuated. On the morning of the twelfth day the right eyelid was swollen and discolored, but the ophthalmoscopic examination was negative. A diagnosis of infective thrombosis of the cavernous sinus was made. An exploratory incision into the orbital cavity failed to evacuate any pus. On the 22d day ulceration and sloughing of the cornea began as a result of pressure, and the temperature varied from 100 to 103° and the pulse was rapid and weak. On the 25th day the lids of the other eye became similarly affected. One eyeball collapsed as a result of the sloughing, but in the other eye this was prevented. The patient slowly recovered. It was evident that the thrombus could not have been an infected one. The child had passed through measles and typhoid fever within a few months of the onset of the mastoiditis. The second case was that of a child of seven years, admitted to the hospital in April, 1901. It had suffered from a chronic otorrhea and more or less headache. There was no swelling over the mastoid, but tenderness on deep pressure. There was convergent strabismus and optic neuritis in the right eye, and the gait was slightly staggering. The mastoid was opened and found normal, and the skull was then opened over the left cerebellar lobe expecting to find an abscess, but none was found. The patient did well, but soon became stupid and a hernia of the cerebellum occurred. The postmortem showed softening of the frontal lobes and a tumor, the size of a hen's egg, in the right lateral lobe of the cerebellum. The lower lobe was softened. The aqueduct of Sylvius and the ventricles were greatly dilated. The microscopical examination had not been completed.

Report of an Exploratory Operation for the Relief of a Possible Cerebellar Tumor or Abscess. Recovery from Operation. Death Three Months Later. Autopsy.—Dr. T. Passmore Berens of New York read a paper with this title. The patient was a child of fourteen years, who responded slowly though correctly to questions. Paralysis of sixth, seventh and eighth nerves, vertigo, vomiting, progressive paresis of extremities. Operation gave only temporary relief, and death occurred eventually from hemorrhage into the brain. The autopsy showed a large mass involving the pons and upper half of the medulla, which was found to be a glioma.

Dr. W. C. Phillips said that he had followed the case reported by Dr. Berens, and remembered that at the time of operation not one of the otological staff of the hospital was convinced that it was an operative case. The operation was done at the request of the neurologists, and in the manner indicated by them.

Dr. Berens said that the subsequent history showed the operation to have been justifiable because the boy was entirely relieved of his pain and greatly relieved of vomiting, probably by the drainage of the cerebrospinal fluid, and his life was prolonged, perhaps at least two months. by the operation.

The Pathology and Diagnosis of Otitis Media Insidiosa (i. e., Sclerosis).—Dr. Henry J. Hartz of Detroit presented this paper. He said that the hyperplasia began within the bone, and involved especially the articulation of the stapes and the oval window. This process constitutes not only a hyperplasia but also a hyperostosis, and metaplasia might localize itself in any of the structures of the labyrinth and in the chain of ossicles. When confined to the labyrinth the integrity of the acoustic nerve might be affected in a purely mechanical way, and induce Méniere's complex and symptoms. In this sclerotic process the cartilage disappeared, becoming converted into osseous tissue, and when the tip of the cochlea was involved the patency of the Eustachian tube was threatened. In most cases the membrane of the middle ear had been found thickened as a result of the initial hyperemia, but there were few signs that the disease was the result of middle ear suppuration. Rheumatism, gout, syphilis and scrofula and diseases of the nasopharynx, such as adenoids and enlarged turbinates, were looked upon as predisposing causes. The duration of the process had been known to vary from three to 30 years. The diagnosis was made by the exclusion of all other forms of progressive deafness and by the functional test. Statistics showed that about 10 per cent. of all middle ear diseases were examples of true sclerosis or the result of spongeous formations. There was usually a high degree of deafness in both ears, and the process began usually between the age of twenty and thirty years. Women were more often affected, and 17 per cent. arose during the puerperium. The deafness of old age must be excluded. Most important of all was the exclusion of catarrhal and suppurative diseases of the middle ear and tube. By the determination of the lower tone limit one could say whether the sclerosis was in the sound-conducting apparatus. Dr. Hartz exhibited Professor Bezold's continuous tone tuning forks, and demonstrated the mode of using them. Microscopical sections of the labyrinth and middle ear showed spongeous formation in the cochlea and ossicles. Some of the specimens were made by Liebermann and Katz and Bezold.

Dr. William L. Ballenger of Chicago said that this paper was the clearest exposition of the subject that he had heard. The cases had been divided into two broad classes, one involving the oval window, and the other in which the disease was chiefly confined to the labyrinth. To this might be added a third class, made up of a mixture of these two. A positive diagnosis was usually made only by microscopical and postmortem study. The disease was not always slowly progressive, but sometimes proceeded by leaps and bounds. This was probably to be explained by the involvement of the region of the greatest functional activity, *i. e.*, the region of the oval window. If the more remote parts of the bone were involved then the deafness would be more insidious. He believed with Dr. Hartz that the functional tests of the ear were as important to the otologist as the ophthalmoscope to the ophthalmologist, and he was, therefore, pleased that this set of instruments had been exhibited.

Dr. C. R. Holmes said that the subject was comparatively new, and not very easy to master, although certainly a very important one as stated by the last speaker. The tests were time-consuming, but it would well repay the patient to liberally remunerate the specialist who would carefully make the differential diagnosis, and so save months of inappropriate and ineffective treatment.

Prognosis in Chronic Catarrh of the Throat and Ear. Some Remarks by a Would-not-be Pessimist.—Dr. Thomas J. Harris of New York read a paper on this subject with the object of eliciting discussion. He said that most cases of catarrh were dependent upon an underlying cause, *e. g.*, the lymphatic diathesis, a chronic derangement of the gastro-intestinal canal, the uric acid diathesis, etc. The common error was to look too intently at the local picture. He believed our progress in the treatment of chronic catarrh of the ear had been very slight as compared with advances in diagnosis. Tubal therapeutics and pneumo-massage were at best too often of temporary benefit, and sometimes of decided harm. A promise to check the deafness was often all that could be given with safety. Prophylactic measures were of the greatest value, especially the early removal of the ever-present adenoids.

Dr. Wendell C. Phillips said that he believed the author of this paper made these pessimistic statements only to arouse opposition and excite discussion. We were all conscious of failures in certain cases but we should not admit that we were not successful. He did not think it was possible, for example, to convince any member of this society that it was desirable to abandon the use of the Eustachian catheter, even though aurists of high reputation, having lost interest in their work, had stated their belief that this treatment was almost useless. He was glad to have the opportunity to champion the use of the catheter when intelligently applied.

Dr. C. R. Holmes said he believed in the use of the aural catheter. It was well not to promise too much in these cases. All that he would say to his patients was that he hoped to be able to secure to them as good hearing as they possessed when in their best physical condition. He was decidedly opposed to the removal of nasal spurs unless they were distinctly responsible for some pathological condition. In some cases a turbinectomy would make the subsequent use of the aural catheter unnecessary. Much depended upon habits of life.

Dr. T. Passmore Berens said that the practice of removing turbinates wholesale was no longer popular, and more dependence was placed upon hygienic treatment.

Dr. J. A. Stucky said that at the present time he used the catheter once where formerly he used it perhaps 50 times, and he did not interfere with spurs unless they were actually doing harm. He did, however, remove pathological conditions of the turbinate.

Dr. Max Goldstein said that if the author of the paper had confined his criticisms to the sclerotic form most of those present would probably agree with him. One should sharply distinguish between the sclerotic and the hypertrophic form.

Dr. W. L. Ballenger said that he understood that all the author of the paper desired was that each case should be thoroughly studied and "fashions" in treatment avoided. We should not set our faces against the removal of nasal spurs because at times these operations do much good.

Dr. G. L. Richards mentioned a case in which after the removal of an obstructing nasal spur the hearing improved very much without direct treatment of the ears.

Case of Thyroid Gland Tumor in the Larynx.—Dr. Walter A. Wells of Washington, D.C., reported this case. He said that this condition was very seldom met with, there having been only nine or 10 cases recorded in which normal thyroid gland tissue had been found in the larynx. His own case was peculiar in that the main thyroid showed microscopically only colloid degeneration, whereas the intralaryngeal tumor had the microscopical characteristics of an adenocarcinoma. In this case he made use of the styptic action of gelatin with good result. The patient was a woman of fifty years who had had a goitre for many years before coming under observation. She sought relief because of a sensation of choking and paroxysms of dyspnea. Although the history indicated a strong hemorrhagic tendency after operative interference, the tumor was removed at several sittings, gelatin being freely used locally and successfully to control the hemorrhage. Out of nine reported cases of thyroid in the larynx, six occurred in women and four had been reported from one clinic, making it probable that this condition was not so rare as the statistics seemed to indicate.

Dr. M. A. Goldstein asked how the gelatin had been used in this case.

Dr. Wells replied that in a 10-per-cent. sterilized solution of gelatin to which had been added 1 per cent. of calcium chloride and half of 1 per cent. of sodium chloride, was employed. It was applied on a cotton swab before and throughout the operation.

Foreign Bodies in the Larynx and Lower Respiratory Tract in Children, with Report of Six Cases.—Dr. Thomas H. Halsted of Syracuse read this paper, reporting six tracheotomies in children under two years and a half old for the removal of foreign bodies lodged in the larynx and bronchus. Of the six cases five recovered and one died. At the time of operation dyspnea was urgent in all. In the cases reported the first spasm partially subsided after a few moments and often misled both parents and physician to believe that the foreign body had been ejected. The dyspnea recurred after a short interval and became constant with at times exacerbations. Cyanosis and epigastric recession were present in all cases and because of the nature of the foreign bodies in his cases in only one would the X-ray have been of service. In his first case, a piece of the shell of a pecan nut was firmly lodged in the ventricle of the larynx. In the second case it was a coffee bean which remained in the right bronchus for one week. In the third case a peanut was extracted with much difficulty from the right bronchus where it was wedged at a distance of four inches from the tracheal opening. The fourth case was somewhat similar to the third one excepting that the nut was coughed up to the tracheal opening after the trachea had been opened and the trachea tickled with a cotton covered probe to excite cough. The fifth case terminated fatally, death due to pneumonia and the foreign body not found or removed, and although no autopsy could be obtained there was every reason to believe that the case was one in which a gold ring had lodged in the bronchus. No X-ray apparatus was at hand at the time. The last case reported was that of a twelve-months-old baby, in whom three fragments of egg shell had lodged in the larynx remaining there for two weeks, causing great dyspnea. The consent to perform tracheotomy could not be obtained for two or three days after the diagnosis was made and then the child was in bad condition, but nevertheless the operation was successful and the child recovered. The unreliability of statistics regarding operative and let-alone treatment was well shown by the fact that the author knew of a case in which a child died of pneumonia, and the discovery of a shoe-button in one of the bronchi was the first knowledge that the parents or physicians had that a foreign body had passed into the air passages. It was unsafe, the author thought, to postpone opening the trachea, particularly in children, after the ordinary methods had failed to remove the foreign body.

Dr. G. Hudson Makuen said that Dr. J. A. Killien had reported the removal of a fish bone 22 mm. long from the left bronchus of a child three and a half years old, under control of the eye by means of bronchoscopy without injury to the tissues, and that Dr. A. Coolidge, Jr., of Boston had spoken of the ease with which foreign bodies may be removed from the trachea and bronchi through a straight tube placed in a previously made tracheal opening artificial light being reflected into the tube from a head mirror; and had reported three cases in which he had employed this method with entire success.

A Simple Method of Correcting Deflections of the Nasal Septum.—Dr. George Fetterolf of Philadelphia read this paper. The author emphasized the importance of recognizing the fact that abundant tissue is always present and classified the different forms thus: (1) Deviation without thickening; (2) deviation with thickening, and (3) thickening without deviation. The most difficult to correct were those embraced in the first two classes. The main difficulty that he had experienced had been in the removel of the excess of tissue. The operation should be so planned as if possible not to disturb the muco-perichondrium of the concave side. He employs general anesthesia and also applies adrenalin solution to the septum. He makes use of a specially devised saw-file, and makes one, two, or three grooves to the perichondrium on the opposite side. The antero-posterior excess can be removed along with the vertical by having his grooves cross each other. The instrument is made in three sizes so as to adapt it to the removal of varying degrees of redundancy, and with it a V-shaped cut can be readily made. A truncated form is used when the grooves already made under the sharp instrument need to be widened. The tube is ordinarily not removed for five days after the operation. By the method described, preliminary dissection of the mucous membrane is unnecessary, and the operation can be completed in three or four minutes. The two margins of the V-shaped cut are exactly parallel and thus accurate completion and quick healing are promoted.

Dr. J. A. Stucky said that he had been deeply interested in this paper because at the meeting of the Southern Section considerable criticism had been directed against the working qualities of Dr. Kyle's saw.

Dr. William R. Lincoln of Cleveland said that he understood this new instrument had been devised to perfect the technic of Dr. Kyle's operation. The instruments of Asch and others were generally thought to be excellent for cases not urgently requiring operation.

Dr. M. A. Goldstein said that the mechanical features of this instrument seemed to him to constitute a distinct advance on former methods. The instrument takes up very little room in the nasal cavity, and its cutting edges operate on both the in and out strokes of the saw. He thought that with this instrument the operation could be made submucous more easily than with any other instrument.

Dr. D. J. G. Wishart asked if the instrument had ever been adapted to an angle handle; he thought that this would be an improvement.

Dr. D. Braden Kyle said that he had employed this V-shaped operation for the correction of deformities of the nasal septum for six years. When describing this operation about three years ago he had only made a limited use of it, but in the last three years this had been the only operation that he had performed. At that time he made use of a saw which, if properly made, worked satisfactorily in cutting out the V-shaped piece and accomplishing two things: (1) The cutting reduced the redundant tissue, and (2) the septum was broken up. The V-shaped file does away with one instrument and shortens the operation materially. There was no bulging of the septum after the operation and no redundant tissue if a sufficiently large V-shaped cut were made. With the V-shaped operation, and particularly with the saw-file, perforation of the septum was practically wholly guarded against. The septum must be made to swing freely from the top. Before taking out a number of V-shaped pieces it was well to dissect up a flap of mucous membrane, which is afterwards allowed to fall back again. He had never seen any bad effects from even the prolonged use of his metal tube-splint. The tube should be flattened next to the septum.

Dr. Fetterolf, in answer to a question from Dr. T. H. Farrell as to why general anesthesia was employed in this operation, said that the object was to secure complete relaxation of the patient and avoid possible fainting during the operation.

Paraffin Injections.—Dr. Harmon Smith of New York by special invitation demonstrated his method of making paraffin injections for the correction of nasal deformities.

Dr. C. E. Munger of Waterbury, Conn., said that he had seen some of these cases, and he thought the best result was one in which there had been both a lateral and an antero-posterior deformity. He had had only one case, and in that one 25 minims of the paraffin had been injected, and apparently with good result.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Thursday, June 19, 1902.

Should Physicians Dispense?—Dr. H. C. Masland read a paper entitled "To What Extent, if at all, Should Physicians Dispense?" in which he referred to the fact that in the early history of medicine, and even at the present day in the rural districts, the physician was compelled to compound his own prescriptions. In thickly populated districts he was soon displaced by the druggist who was more expert in this work, and he held sway until the introduction of the tablet triturate and the compressed tablet. This has induced many practitioners to assume the system of dispensing, the points in the favor of this method being cheapness, uniformity in strength, palatability and absorptibility. The objection often raised that these tablets contain inferior drugs was thought to be refuted by the fact that the majority of manufacturers obtain them direct from the field of production, which would indicate a purer and stronger article, which the author felt to be the case. Another strong point in favor of tablet dispensing was that the physician would carry his medicines with him and administer them at once instead of waiting to have a prescription filled, a very important point in emergency cases. The ingredients it was felt would be more thoroughly mixed than could be done by hand, and in dispensing in this manner the patient is prevented from constant renewing of the prescription without consulting the physician, which has a very deleterious effect. Remedies deteriorating with age should, of course, be dispensed by fresh prescriptions.

Dr. W. S. Higbee thoroughly approved of physicians dispensing remedies in the shape of tablets, believing that the tablet possessed the advantages of immediate application of the remedy without waiting to have the prescription filled; that the patient could not keep on taking the same medicine indefinitely without being seen, as is the cases with prescriptions which patients too frequently have renewed time after time, in many instances to their detriment. In addition to the tablets, the speaker keeps a certain number of liquid preparations in his office, and dispenses these to his patients in place of giving prescriptions when indicated, believing that in both of these ways he secures much purer and more accurate compounds than by having the prescriptions taken to any drug store indiscriminately by the patient. While it was thought to be unethical to use prescription blanks with the names of drug stores thereon, better results have been obtained by having prescriptions filled at certain pharmacies in each neighborhood.

Dr. J. Cardeen Cooper felt that there should be no ethical objections to physicians maintaining drug stores. As to whether or not the physician should dispense, he believed that point should be decided solely from the consideration of what is best for the patient from a scientific standpoint. It was not felt, however, that any set formula should be given for all conditions, and if the physician has not exactly the remedy at hand which he desires to prescribe without any other drugs combined, it was recommended that he write a prescription. In conclusion, the opinion was expressed that the scientific status of the profession would be advanced by the discontinuance of dispensing by all physicians, and the discountenancing of all proprietary remedies, prescriptions being written for liquid or tablets according to convenience of administration and the physiological action of the remedies.

Dr. A. Bern Hirsh gave a résumé of the development of tablet dispensing which began about two decades ago, and which he believed had been largely augmented by the influence of the methods practised by homeopathic physicians. The deleterious practice of prescribing some set formula for every case was deprecated, and the opinion expressed that this condition of affairs would not exist if the practitioner would devote more time to the study of his *materia medica.*

Dr. Wilson Buckby believed that better results would follow the administration of liquids than of remedies in tablet form, and when the latter mode was employed, the tablets should be so made that they will dialysize through the tissues. He did not consider, however, that there was anything unethical in a physician dispensing.

Dr. H. Brooker Mills felt that the practice of dispensing by the physician had been largely augmented by the increasing tendency of certain druggists to prescribe and dispense certain remedies, and the inclination on the part of the patient to continue indefinitely having a certain prescription filled and refilled, simply because he believed it was doing him good, when in truth, in many instances it is doing him injury. The two chief objections urged were the changes taking place, which in some instances render the tablet inert, and the liability of incompatibility of drugs in the tablet. The second objection, however, was thought to be more than overbalanced by the fact that practically all the formulas for these tablets were approved of by expert pharmaceutists. It was admitted that this would increase commercialism, but there was felt to be no reason why the physician should not invest his money in any manner he desired, either by opening a drug store or dispensing his own medicines.

Dr. Carle Lee Felt believed that better results would be obtained if a physician could uniformly have his prescriptions put up by the same druggist, and believed that the indiscriminate manner in which prescriptions were taken by physicians to different pharmacies had led many practitioners to adopt the method of dispensing themselves.

Dr. Wendell Reber expressed the opinion that the majority of physicians had been forced into dispensing by the inferior and impure quality of the drugs which are oftentimes used by some druggists. The tinctures are particularly apt to have this failing, tincture of belladonna and aconite having been found to be inferior by the author, the reason assigned for it being that they are usually made from the fluid extract and sufficient care is not exercised to see that the alcohol is of the proper percentage.

Dr. William K. Shea felt that the question must be an individual one, depending largely upon the disposition of the patient, and he believed that just as good results could be obtained from a first-class tablet as from a liquid.

Dr. S. P. Gerhard stated that he had been led to begin office dispensing by having druggists fill prescriptions improperly. The greatest objection, he felt, was the liability of the practitioner falling into the habit of making the symptom fit the medicine, rather than moulding the medicine according to the disease.

Dr. L. C. Peter believed that the two principal questions in this connection were: (1) Is the dispensing of tablets practicable? and (2) Is it ethical to dispense tablets? both of which he answered in the affirmative, supporting the first affirmative by the fact that it had been demonstrated that the tablets were made from the active principles of the drug and were so soluble that they practically assumed a liquid form as soon as they entered the stomach.

Dr. J. H. Mudgett was decidedly in favor of physicians dispensing their own remedies, and also expressed the opinion that an increase in dietic and hygienic treatment and reduction in drug treatment would be followed by gratifying results.

In closing Dr. Masland expressed the opinion that more uniform dosage could be secured by the administration of medicine in tablet form, and also that many remedies which were indicated to be given as liquids, such as the iodide and bromide of potassium, would be best administered by dissolving in water a tablet containing a known amount.

BOOK REVIEWS.

THE ECLECTIC PRACTICE IN DISEASES OF CHILDREN. By WILLIAM NELSON MUNDY, M.D., formerly Professor of Physical Diagnosis, Hygiene and Clinical Diseases of Children in the Eclectic Medical Institute, Cincinnati. The Scudder Brothers Company, 1902.

As in King's Eclectic Dispensatory, we find little in this book to distinguish it from "non-eclectic" books of the same nature, except the strong tendency to praise vegetable drugs, many of which have dropped out of general use, and the treatment of symptoms. A frequent, small, sharp pulse, frontal headache of the left orbit, and red papillæ at tip of tongue demand rhus; headache in right side with flushed right cheek requires bryonia. After an introductory discussion of various remedies and their therapeutics, without any consideration of their physiological action, the author takes up in detail the various diseases, classified as in other similar works. Pathology is given but little consideration; symptoms are dwelt on at length, and treatment is concisely and dogmatically set down as almost specific. The author makes free use of therapeutic measures other than drugs, such as hydrotherapeutics, massage, etc. Among the "specific medications" for the different manifestations of typhoid fever are mentioned, aconite, veratrum, rhus tox, for frontal headache, gelsemium, belladonna, hyoscyamus, passiflora, whiskey, sodium sulphite, baptisia, hydrochloric acid and many other remedies. The book must be a valuable addition to the library of the "eclectic" practitioner.

A MANUAL OF OTOLOGY. By GORHAM BACON, A.B., M.D., Professor of Otology in Cornell University Medical College, New York; Aural Surgeon, New York Eye and Ear Infirmary. Introductory Chapter by CLARENCE JOHN BLAKE, M.D. Third Edition, Revised and Enlarged, with 120 illustration and seven plates. Lea Brothers & Co., New York and Philadelphia.

THIS new edition follows very promptly on the second, as that did upon the first, evidence of value and demand. We do not attach much importance to the enlargement and revision, as little change seems to be made in the previous editions. The brief consideration of the value of the more recent use of lumbar puncture in cases of leptomeningitis of otitic origin, gives the book, of course, the gain of having added to it the latest new feature. But this third edition owes its value to its unique character as a plain, sensible manual more than to any changes made in it. That is to say, it continues to deserve well, on the ground of its original merit.

DISEASES OF THE NOSE, PHARYNX, AND EAR. By HENRY GRADLE, M.D., Professor of Ophthalmology and Otology, Northwestern University Medical School, Chicago. Handsome octavo of 547 pages, profusely illustrated, including two full-page plates in colors. Philadelphia and London. W. B. Saunders & Co.

IT is the author's intention to present these special diseases as he has seen them during an experience of 25 years, while in touch with the work of others. He states that it has been his aim to answer in detail those questions regarding the course and outcome of diseases which cause the less experienced observer the most anxiety in an individual case. This method has resulted in a work without the brevity and sharp divisions of a student's compend, but one adapted to the wants of the general practitioner. The descriptive material is clearly written and can be easily read. A liberal amount of space is devoted to topographic anatomy with numerous illustrations drawn from all sources. The therapeutic measures described and advocated by the author are those which in his opinion have stood the test of experience, and all others, although sanctioned by textbook tradition, have been wisely omitted. The first part of the work is taken up with the diseases of the nasal passages and pharynx. After an introductory chapter on the special anatomy of the respiratory passages, there follows an excellent chapter on general etiology and hygiene of nasal and pharyngeal diseases. The succeeding chapters contain complete descriptions of the various diseases, the symptoms, etiology, pathology, diagnosis and treatment being separately considered. An excellent innovation is the brief but valuable paragraphs on "history and literature" appended to many of the chapters. The second part of the book is concerned with the diseases of the ear and is treated in the same manner. The illustrations are good and, although none too numerous, are well selected, especially those relating to the topical anatomy.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

ELEMENTARY HYGIENE FOR THE TROPICS. By Azel Ames, M.D. 12mo, 180 pages. D. C. Heath & Co., Boston.

A PHYSICIAN'S PRACTICAL GYNECOLOGY. By W. O. Henry, M.D. 12mo, 229 pages. The Review Press, Lincoln, Neb.

TRANSACTIONS OF THE CHICAGO PATHOLOGICAL SOCIETY. Volume IV. American Medical Association Press, Chicago.

THE PRINCIPLES AND PRACTICE OF BANDAGING. By Gwilym G. Davis, M.D. 12mo, 146 pages. P. Blakiston's Sons & Co., Philadelphia.

TREATISE ON DISEASES OF THE SKIN. By Henry W. Stelwagon, M.D., Ph.D. 8vo, 1115 pages. W. B. Saunders & Co., Philadelphia and London.

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ORIGINAL ARTICLES.

EMPYEMA IN INFANTS AND CHILDREN: ITS FREQUENCY, ETIOLOGY, SYMPTOMATOLOGY AND PROGNOSIS.*

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FROM a clinical standpoint it is not possible in infants and children to sharply differentiate the symptoms of pleurisy with effusion from those of empyema. They merge into one other and it is convenient to consider both under the common heading of effusion into the pleural cavity.

The frequency of empyema in infancy and childhood has been variously stated. The greatest number of cases of empyema occur before the fifth year of life (Simmonds). Fully 40 per cent. of the pleurisies in infancy and childhood are purulent. In adults only five per cent. of pleurisies are of this nature (Mackey). The greater frequency is found to occur in the male sex (Hofmokl). Bilateral involvement was found in two, or 12 per cent., of the author's personal cases.

In infants purulent effusions are very common and in most children before the age of five years an effusion is very likely to be purulent. Of my own cases, numbering 120, 104 occurred in children under five years of age, sixteen between the fifth and tenth years; thirty-nine were between the age of one and two years and sixteen were less than twelve months old. The youngest infant was two months old.

Etiologically, in infants and children empyema follows some acute affection of the lung in fully 95 per cent. of the cases. This affection in 69 per cent. of the author's cases was probably a pneumonia pure and simple for the pneumococcus was found in the exudate, either in pure culture or combined with the streptococcus pyogenes. In 15 per cent. of the cases the streptococcus pyogenes alone was found, in 9 per cent. the staphylococcus and in only 7 per cent. of the cases the tubercle bacillus was found or the exudate was free from bacterial contamination. In the latter class of cases the presumption was that the empyema was tuberculous. These statistics are founded on a personal series of seventy-one cases, in which cultures were made of the bacteria in the exudate. These figures correspond closely to those of Netter in a series of twenty-eight cases in children. The tuberculous forms of empyema are thus the infrequent variety in children. In adults Bowditch found that fully 45 per cent. of the pleurisies including empyema were tuberculous. With children many of the streptococcus and staphylococcus cases must be included under the heading of the metapneumonic forms of pleurisy. But a very small percentage of these cases is tuberculous. In the adult subject a much larger percentage of the streptococcus and staphylococcus cases is tuberculous, although tubercle bacilli are not found in the exudate.

It will be seen at a glance that in infants and children empyema is an acute affection. It follows all forms of pneumonia, the infectious diseases, measles, scarlet fever, pertussis, typhus and typhoid fever, diphtheria, forms of tonsillitis, retropharyngeal abscess, mediastinal abscess, or chronic intestinal catarrh. Sepsis of the newborn infant, osteomyelitis and appendicitis. All these affections may be complicated by empyema, and although exposure to cold and dampness predispose to an attack of this affection they cannot be said to directly cause it.

The nature of the purulent effusion is of clinical interest. In the majority of cases the purulent effusion into the pleura has the gross characteristics of ordinary pus. In other cases the effusion is first a clear serous effusion and subsequently is seen to change into a purulent one without any extraneous infection. In another set of cases the effusion is a cloudy serum which is found on subsequent exploratory puncture to be purulent. In very rare cases the exudate into the chest is hemorrhagic. A hemorrhagic empyema has not the serious significance in children that it has in the adult—it is not necessarily tuberculous or due to a new growth of the pleura; such pleuritic exudates may be rheumatic if serous. If purulent, there may be a scorbutic element in the case. I have seen a number of hemorrhagic exudates which did not appear to be tuberculous or due to new growths of the lung or pleura. In a series of 120 cases of empyema three were hemorrhagic. The exudate was hemorrhagic at the operation and at each subsequent dressing the pus was mingled with blood, giving a chocolate color to the exudate. All of these cases made a good recovery; in all of them streptococci were found and isolated in culture, but in none was the tubercle bacillus found.

Symptoms.—We can scarcely speak of any symptoms which are distinctive of empyema. The disease is masked by the symptoms of the main causal affection. Those cases which follow a pneumonia will set in with the symptoms and signs of lobar or bronchopneumonia. When the main affection has run its course the temperature drops to the normal and may continue thus for a few days. After this period the temperature may show a daily elevation of a half a degree or more. Examination at this time will give, in addition to the signs of a resolving pneumonia, those of fluid in the chest. Puncture of the chest may reveal a serous effusion. At the end of the second week the temperature may show a sudden rise of two or more degrees. Puncture of the chest will disclose that the effusion is purulent.

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* Read before the County Medical Society, 1902.

In other cases the temperature, pulse and respirations, after the first week or ten days of the pneumonia, do not recede to the normal. There is a persistent temperature with increased pulse rate and rapid respiration. The signs in the chest, instead of clearing up, only become more and more marked, resembling very closely an extension of the pneumonia, when in reality there is, in addition to the process in the lung, fluid in the pleura. After twelve to fourteen days the signs of fluid in the chest are more apparent and an exploratory puncture reveals an empyema.

In still other cases the empyema has its onset with the pneumonia in the lung and is masked by the signs of the pneumonia. The temperature, pulse and respiration continue high and very early in the disease, the eighth day, signs of an effusion is found.

In another series of cases the progress of the disease is more insidious. After two or three days of fever the temperature subsides and the other symptoms of pain and dyspnea moderate. There remains a slight hacking cough, steady emaciation, pallor, and loss of appetite. To these may be added exhausting night sweats. If the chest is examined at this time we may find it full of fluid which on puncture reveals the presence of an empyema. There are some symptoms such as exhausting night sweats, a distinctly intermittent range of temperature, which with a persistent increased number of respirations may direct our attention to the chest. None of these, however, are pathognomonic of empyema but may be found in other pulmonary conditions.

The physical signs must always be taken into careful consideration in an attempt to diagnose fluid in the chest. In infants and children the classical signs of fluid in the chest may be absent and still the chest may be the seat of an exudate. In fact effusion of fluid in the chest in infants and children gives signs which are not found in the adult. It is comparatively simple to diagnose fluid which only partly fills the chest. If the chest is full of fluid the difficulties of diagnosis are rather increased.

Space and time will not permit us a complete and exhaustive consideration of the signs of fluid in the chests of infants and children, but we may point out the main features of some cases.

(a) The pleural cavity may be full of fluid and still the voice and breathing will be normal or only slightly diminished in intensity over the whole chest anteriorly and posteriorly; (b) broncophony and bronchial breathing with pleuritic râles may in some cases be heard over the whole of one side of the chest, the seat of effusion

Of greatest utility are the percussion note, the fremitus, and the displacement of viscera. The percussion note posteriorly is flat over the whole side. There is a resistance which is detected by the finger on percussion, and which is quite characteristic in infants and children. Anteriorly the note on percussion varies widely. It may be hyperresonant over the apex of the lung (Skoda's resonance) due to lung compression. In most cases the fremitus is absent or diminished if the infant cries. In older children who are intelligent fremitus may be elicited in the same manner as in the adult. On the left side the displacement of the apex of the heart, and on the right side that of the liver, are of confirmatory value. The diagnosis of fluid in the chest is not always a simple matter. If an infant or child has been ill for two weeks with signs of pneumonia in the early part of the disease we should be on our guard. First, if the temperature does not fall but though remitting still continues; if the signs of local consolidation of small or large areas give place to dulness or flatness over the whole side of the chest; if the condition of the patient is tolerably good it is self-evident that these signs, even if combined with broncophony and bronchial breathing cannot always be due to consolidation of the whole lung. If in addition there are displacement of viscera, principally the heart and liver, with drawing inward of the intercostal spaces during inspiration, immobility of the affected side and bulging, the dulness or flatness and loss of fremitus are presumptive evidences of fluid in the pleural cavity. Encapsulation of fluid, though not very common, does occur, especially in the region between the lobes of the lung (interlobar). In these cases the signs of fluid are most apparent in the mid and posterior axillary lines. We then obtain signs of a localized collection of fluid, flatness, bronchial voice and breathing and in some few cases, especially on the right side just above the liver, a tenderness of the ribs on percussion.

There are certain localities in which the diagnosis of fluid must be made with reserve. These are over the upper lobe of the lung in front, over the lower lobe in front on the right or left side without corresponding signs behind.

No diagnosis is complete without exploratory puncture of the chest. This is a comparatively simple procedure devoid of any danger. This is not the place to enter into the minutiæ of this operation. It may be said that rather than be in doubt we should enter the exploring needle into any chest in which the signs lead us to suspect fluid. The omission of such a puncture is only unjust to the patient. With ordinary care we do not subject the patient to any risk of further infection. We cannot readily cause a serous effusion to become purulent if ordinary cleanliness is exercised. Puncture should always be made with the patient in the upright posture. One or two punctures only should be carried out at a sitting. If no fluid is obtained we should not hesitate, should signs and symptoms persist, to again enter the chest after a reasonable interval.

The prognosis of the metapulmonic form of empyema in infants and children is good—certainly not more serious than the original affection which gave rise to the condition. In private practice where the patient is observed from the outset of the disease and we can interfere by surgical means at the right moment, the outlook is much better than in hospital practice. In the latter the patient comes to the physician at a very late period of the disease. The exhaustion is sometimes extreme and in many cases systemic infection has taken place. With all of these drawbacks the results in hospital practice are not bad. Each patient should receive due consideration as to the nature of the operative procedure to be followed; whether incision or resection. Of 120 cases of all kinds operated upon, some by incision, others by resection in the author's hospital service, twenty died. Of these fatal cases four died within one to five days after admission. In the latter, not the operation but the delay in interference with consequent sepsis or systemic infection was the cause of death. These cases could have been saved had an opportunity been offered for earlier interference.

Of twenty cases of death after operation, pneumonia, either persistent or recurrent, caused the fatal issue in eleven cases; general sepsis in two; marasmus and ulcer of the duodenum in one, and in two cerebral embolism was found postmortem. In the remaining three the cause of death was unknown, that is, no postmortem was allowed. In one of the above cases of terminal pneumonia the empyema finally involved the opposite side. In one case also, in addition, the pericardium was found involved at the postmortem. It will be seen that the complication most to be feared is bronchopneumonia. This may involve the lung of the operated side—a more frequent occurrence than an affection of the lung on the unaffected side. I have not as yet been able to find the cause of this secondary bronchopneumonia. In some cases in which it occurred late in the convalescence it seemed to be rather a re-infection traceable to infectious matter present and dormant in the system prior to the operation. In other cases the bronchopneumonia was present at the time of operation. The lung in the latter could be seen through the operation wound to be partially solidified. Most of these patients in whom the lung is found in this condition after operation do not recover; they die of general systemic infection combined with persistent pneumonia in the lung. The prognosis of the tuberculous forms of empyema in children must rest on the age of the patient and the extent of lung involved with the pleuritic affection. In children the outlook in this form of empyema on the whole is much better than in the adult subject.

Bachelor Degrees in Three Years.—The University of Pennsylvania has made a move in the direction of solving an important question of college and medical courses by making it possible for its students to obtain the bachelor's degree in three years. Those students who prefer to work at a slower rate may take at their pleasure either four or five years for doing the same amount of work. This change is not in the nature of a combined short course for medical students, but to an earnest worker it reduces the time one year.

SURGICAL TREATMENT OF EMPYEMA. A REPORT BASED UPON SEVENTY-FIVE CASES, OBSERVED CHIEFLY IN ST. MARY'S HOSPITAL FOR CHILDREN.

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Seventy-three of the patients who form the basis of this report were between two and fifteen years of age; this average was greater than that of other series, and this difference probably accounts for the greater proportion of tuberculous cases. Two of the patients were adults who recovered satisfactorily after illness somewhat longer than the average for children. All but six of the patients were treated in St. Mary's Free Hospital for Children. The statistics of fourteen cases previously reported from that hospital by Dr. Charles T. Poore are included. Since 1894 there have been sixty-one cases under the personal observation of the writer; some of the operations, however, have been done by Dr. Poore, attending surgeon; Drs. Carmalt, Mathews and Downes, assistant surgeons; and Drs. Kosmak, Clark and Munger, house surgeons.

Clinical Classification of Cases.—From a therapeutic standpoint the cases readily divided themselves into three groups:

(I.) Simple Empyema: recovery coming within three months or less.

(II.) Protracted Empyema: recovery being delayed more than three months.

(III.) Fatal Cases.

This classification does not exactly correspond to the bacteriological findings, but most of the first group, the simple cases, were due to pneumococci; and many of the protracted and fatal cases were due to tuberculosis; but the duration of lung compression, the amount of pleuritic thickening and the ability of the patient to resist the effect of the inflammation are to be considered as well as the bacterial cause of the disease.

Figures I, II and III indicate the conditions usually found in simple cases, protracted cases, and in that class of protracted cases in whom tuberculous foci caused persistent sinuses.

Description of the Routine Methods of Treatment.—The treatment has varied with the conditions which were present. The ordinary treatment for the acute cases has been to excise under anesthesia about one and one-half inches of a rib, usually the seventh or eighth, in the posterior axillary line; to permit the pus to escape and then remove the coagula if they were present. A rubber drainage tube, cut partly across and doubled on itself, was inserted and secured with large-sized safety pins, an absorbent sterile dressing was then applied and changed as often as it became saturated.

Expansion of the lung was encouraged by allowing the patients to be up at as early a date as possible and having them make forced expiration by blowing into a jar, so arranged that water was forced through a tube into a second jar. No irrigation of the pleural cavity was used excepting in cases in which there was a very foul smelling discharge due to necrotic lung tissue. Aspiration was used as a temporary expedient in certain patients who needed to be relieved of the pus without delay, but who were suffering so much from dyspnea and prostration that immediate operation was inadvisable. In each of these instances the chest was easily opened a few days later.

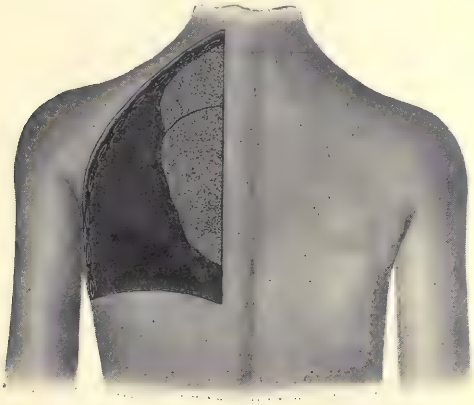

Fig. I.—Acute empyema; showing left pleural cavity greatly distended by pus. The lung is compressed toward the spinal column. The pleura is not much thickened. The pus contains numerous coagula.

It was also used in two cases of double empyema to temporarily remove the pus from the one side of the chest after the other had been opened.

It was also used in a few instances to test its efficacy in cases of slight virulence, but the results were not satisfactory.

Incision between the ribs was substituted for excision of a piece of rib in certain instances where anesthesia was contra-indicated.

In the protracted cases secondary operations were done when the conditions had remained apparently stationary for four or five weeks and when there was little likelihood of a cure without such operation. In the earlier cases portions of the chest wall were removed by the methods of Schede and Estlander. During the last two years, when suitable occasion occurred, the thickened pulmonary pleura has been separated from the lung as suggested by Fowler and Delorme.

The details of treatment can best be considered by studying the different groups of cases.

Study of the Separate Groups of Cases.

Simple Empyema.—Let us now consider the group of simple cases which healed without important incident within three months. There were forty of them, 53⅓ per cent. of the entire number. Eight healed within the first month, eighteen in the second month and fourteen in the third month. This is the class of cases which are most often seen in private practice, the ones about whom discussion has often centered with regard to the merits of aspiration, incision and other methods of treatment.

No doubt some of them would have recovered under treatment by aspiration, by incision without rib resection, or by the use of trocar and canula. It is, however, the general belief that resection of a piece of rib and free drainage gives the best results in a series of such cases and that it is the best routine treatment for the ordinary case. Holt's[1] analysis of 121 cases treated by aspiration shows that only twenty-three of the entire number recovered without further surgical procedure. This corresponds with the experience of other observers; and one can hardly recommend for such a disease as empyema a method of treatment which offers chances of success at a ratio of less than one to five. It is not, however, of paramount importance how the first liberation of pus is accomplished: for patients who are gasping for breath, and whose condition is really critical, aspiration may be a life-saving procedure; for patients who are not in a condition to take a general anesthetic incision between two ribs and the insertion of a tube may be the best of all methods. But it is of the utmost importance that these methods should not be persisted in when more radical measures are indicated. The two following instances illustrate this point:

(1.) A patient suffering from pneumococcus empyema in whom aspiration was practised, but the lung failed to expand and pneumothorax resulted. He was doing badly under aspiration. He recovered satisfactorily, however, when a piece of rib was removed and thorough drainage established.

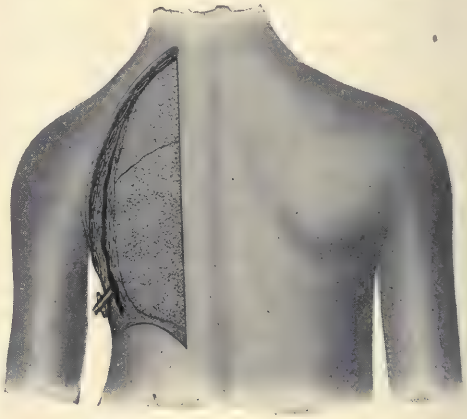

Fig. II.—Protracted empyema. The chest wall is much contracted. The lung is still much compressed. The pleura is greatly thickened by a firm deposit of fibrinous material. Tubercles may or may not be present.

(2.) A patient whose chest was opened by incision between two ribs, was doing badly at the end of two weeks; he had the symptoms of sepsis, and there was a profuse discharge of foul smelling pus. On removing a piece of rib a large amount of fetid coagula was found in the chest cavity and after its removal prompt recovery followed.

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[1] Archiv. Pediatrics, May, 1892.

There are other similar cases in the series. The proper opening of the chest cavity was essential in them all; although the temporary measures which were used at first may have been best under the existing circumstances.

Protracted Empyema.—In this second group there were twenty-four cases; their character is indicated by the following résumé: In four of them the pus perforated the chest wall. In one it perforated the diaphragm and came to the surface below the costal border. In two it perforated the lung, about two quarts being coughed up in one instance. In one there was an abscess of the lung. In three cases there was bilateral empyema. In four cases there was tuberculosis with healing. In three cases there was tuberculosis with persisting sinus. In one case there was necrosis of a rib. In five cases there was delayed healing for which no definite reason could be assigned except the severity and extent of the disease.

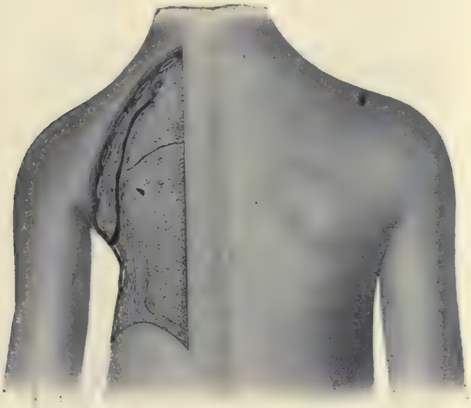

Fig. III.—Chronic empyema with persisting sinus. A portion of the chest wall has been removed and hence there is greater retraction than in Diagram II. The lung is confined by the thick, dense deposit upon the pleura. Tubercular inflammation is present at the apex and the resulting discharge prevents the closing of the sinus.

Five of the cases healed in the fourth month; nine in the fifth; two in the sixth; one in the eighth; one in the ninth; one after nineteen months; one after twenty-five months; one after twenty-nine months; three had each a small sinus when last seen.

Five of the fatal cases should also be counted among the protracted cases. Thus we see that in this collection of seventy-five cases, most of them treated in the hospital (where the severest type of cases is usually seen), there were twenty-nine or 38⅔ per cent. who had tuberculosis or some other complication which caused a protracted illness.

It is to this class of cases that your attention is particularly asked, since their treatment presents the most puzzling problems. The methods of closing the cavity are based on two principles: (1.) Causing contraction of the chest wall; (2.) permitting expansion of the lungs.

If chest wall and lung can be brought together, the cavity between them is obliterated and a sinus can only persist when the discharge from a focus of disease (usually tuberculous) keeps it open.

Methods of Securing Contraction of Chest Wall.—Estlander removed portions of several ribs and thus alowed the chest wall to sink toward the lung. Schede excised portions of the costal pleura and intercostal muscles in addition to the portions of ribs, and thus obtained still greater collapse of the chest wall. These methods have been in use for years and the results are in many instances satisfactory, long persisting sinuses having been obliterated by their use and many lives having been saved. In certain instances the lung partially re-expands after healing has taken place; in others it fails to do so, and if a large portion of the chest wall has been removed the resulting deformity is very great.

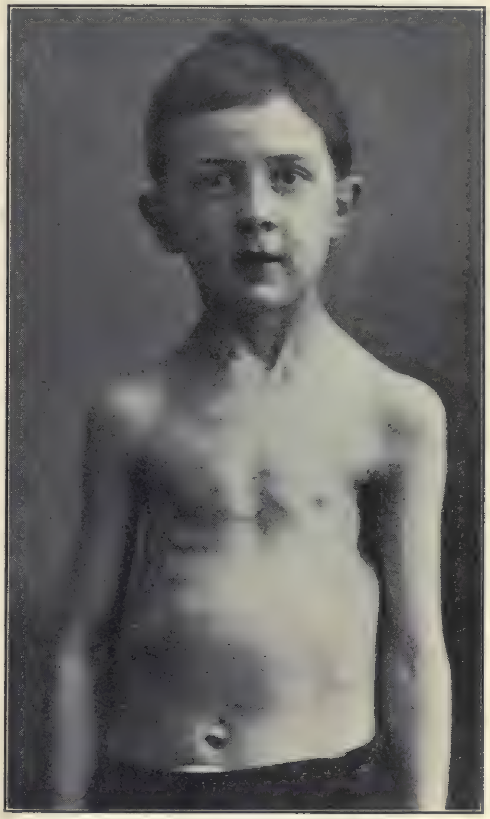

Fig. IV.—Tuberculous empyema. Healed by Fowler's method four years and five months after the first operation.

In twelve of the cases of this series portions of ribs or chest wall were removed acording to one of these methods, without incision of the pulmonary pleura; in six of them healing resulted; two others had each a small sinus at the time of last observation; four died; two with undoubted tuberculosis, the other two probably with tuberculosis.

In the patients from whom only a small portion of chest wall was removed (one to five inches from two or three ribs) the resulting deformity was insignificant. In those from whom large portions of chest wall were removed the resulting deformity was sometimes great.

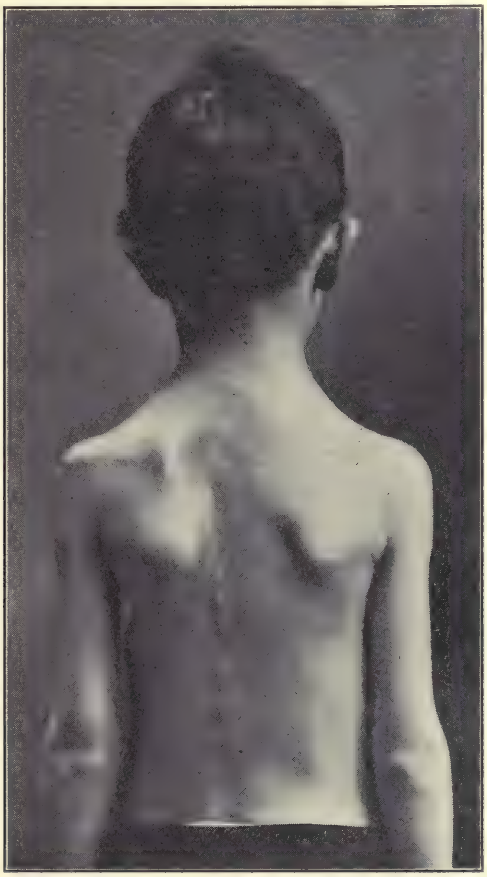

Fig. V.—Healed tuberculous empyema; same case as Fig. IV, back view.

Methods of Securing Expansion of the Lung.—It was manifestly very important to secure expansion of the lung if possible. This is encouraged in the ordinary cases by exercise and forced expiration. In the severe cases, however, there is a dense layer of fibrinous material on the surface of the pleura. This in some instances is an inch or more in thickness and envelops the collapsed lung in a dense unyielding capsule which is a positive barrier to its expansion.

In October, 1893, Dr. Geo. R. Fowler[1] of Brooklyn dissected away a portion of this dense covering and found that the lung, thus freed, expanded and soon filled the pleural cavity, thus obliterating a sinus which had existed for two years in spite of various forms of treatment.

Delorme[2] in January, 1894, having previously experimented on the cadaver, did a similar operation for an empyema of long standing and gained a similar result. He compared the expanding of the lung to that which is seen when air is blown into an animal's lung.

Since then many similar operations have been done. In some instances incision has been made through the thickened pleura to the lung and the pleura has been stripped back on each side; in other instances the thickened pleura has been dissected away bodily. The results have been sufficiently good to encourage similar procedures in suitable cases. The operation itself is not particularly dangerous nor yet particularly difficult in most instances, the hemorrhage is not excessive and is easily controlled by pressure or ligation. With the aid of retractors access to the pleura can be gained without cutting away large portions of ribs or chest wall.

Fowler has collected the statistics of thirty cases in which this method has been used, and gives the following table of results: Cures eleven; improved, six; unimproved, nine; died, three; in doubt, one. The writer has used this method four times; incising the pleura and stripping it back. In two instances satisfactory cures resulted. In the third case the lung expanded well, but a sinus still persists, due, I believe, to tuberculosis at the apex. In the fourth case the pleura could not be separated from the lung on

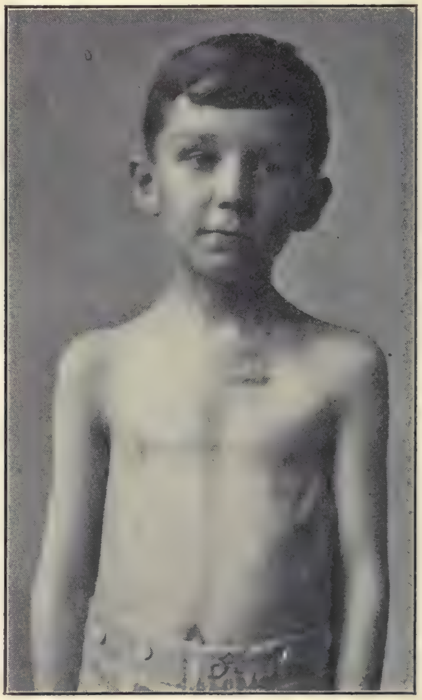

Fig. VI.—Protracted empyema. The pus had perforated the chest wall in two places. Healing followed the incising and stripping back of the pulmonary pleura. Photographed two years after operation. Boy in vigorous health, with good expansion and good respiratory murmur on both sides of chest.

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[1] N. Y. Med. Record, Dec. 30, 1893.
[2] Gaz. des Hôpitaux, 1894, No. 11.

account of tuberculous inflammation which proved fatal at a later time.

The appearance of the patients whose sinuses healed is indicated in the accompanying photographs. The first (see photographs, Figs. IV and V), who is now ten years old, was first operated upon for empyema in October, 1897; a few months later a second operation was done at one of the hospitals in the city and tuberculosis was found in the pleura. The wound healed but opened again.

On October 20, 1899, the writer excised portions of the fourth, fifth, sixth, seventh and eighth ribs and the corresponding part of the chest wall according to Schede's method. On November 15, 1900, the scar tissue was resected and the thickened pulmonary pleura incised and stripped back from the lung. The lung was found to have a delicate pink color and it expanded readily where it was liberated. A small sinus persisted till March, 1902, when it healed. The child was seen June 23, 1902. The sinus is entirely healed and there is a good respiratory murmur all over each lung. Tuberculous lymph nodes have been excised from the axilla, but there is no evidence of tuberculosis at the present time.

The second patient (see photograph, Fig. VI) suffered from neglected empyema, the pus having perforated the chest wall. A portion of the seventh rib was resected in the posterior axillary line and for nearly four months efforts were made to drain the pleural cavity through this opening and to expand the lung by forced expiration; there still remained a large sinus leading to the apex and a localized abscess was pointing between the second and third ribs. An incision was, therefore, made through the chest wall and small portions of ribs, third to ninth inclusive, were removed; an incision was then made through the thickened pulmonary pleura to the lung from the base almost to the apex. This pleura was stripped back from both sides of the incision; considerable expansion of the lung followed at once and healing ensued within a few weeks.

The results in these four cases correspond fairly well with the observations tabulated by Fowler. The method has without doubt added new possibilities to the treatment of long persisting empyema. Cases have been cured which were not cured by other methods and the deformity is less than that which follows the resection of large portions of the chest wall. It cannot, however, be expected to cure all cases in which the discharge from tubercular foci causes persistent sinuses.

Fatal Cases.—The fatal cases should be studied as a group. They throw some light on the pathology and treatment of the disease, although the possibility of obtaining permission for autopsies in some of them has limited the definite observations and consequent deductions.

Their entire number was eleven. Three were definitely tuberculous. Two others were probably tuberculous. Three apparently died from pneumonia which preceded and accompanied the empyema. One died of pneumococcus peritonitis. One died of intercurrent diphtheria. One apparently died from the effects of the empyema or the bronchopneumonia which it accompanied.

In one of the tuberculous cases a condition existed which is instructive as to the relationship between tuberculosis and empyema. A weak child of four years was admitted to the hospital August 10, 1900, with pus in the left pleural cavity, having been ill for two months. Eight ounces of pus were withdrawn by aspiration; it contained pneumococci, apparently in pure culture. August 14, one and one-half inches of the seventh rib were removed and more pus evacuated. The pleura was much thickened. Two weeks later he was sent to the country branch of the hospital where he remained a month. The discharge continued to be profuse and the lung did not expand. October 15, portions of fifth ribs were removed and the effort was made to strip back the thickened pleura and permit the lung to expand. There seemed to be, however, no line of demarcation between lung and pleura, and expansion could not be obtained.

The portions of the thickened pleura which were excised were examined microscopically, but no evidence of tuberculosis could be found in them; they seemed to be simple granulation tissue. Six months later the child died and miliary tubercles were found in both lungs, tubercle bacilli being stained in the lung tissue.

This is clearly a case of a tuberculous child who developed a pneumococcus empyema, with great thickening of the pleura. The course of the empyema was greatly modified by the tuberculosis, yet if no autopsy had been obtained a certain diagnosis of tuberculosis would have been impossible, although the pus and the thickened tissue on the pleura had been examined microscopically. I believe that this is an example of a type of persistent empyema which is not uncommon, even in children.

In one of the other tuberculous cases there was abscess of the lung, perforation and pneumothorax. In one, tuberculosis of the spine and cervical lymph nodes developed in addition to that in the lung. Of the two cases which are classed as probably tuberculous, one had a sinus which persisted nearly two years and developed evidences of amyloid degeneration of the internal organs. The other had a cough before the empyema developed and lost in strength continually during the three and a half months, while the discharge from the empyema lasted.

All the three patients who are recorded as dying of pneumonia had pneumococci in the pus which was taken from the chest, and in all the pneumonia preceded the empyema and probably was never entirely absent from the lung. In one instance death occurred twenty-one days after the operation, and at the autopsy both lobes of the lung were found to be consolidated. In the second the symptoms and physical signs were similar, the child living only eleven days after the operation. The third patient had only a circumscribed empyema, but the evidences of pneumonia persisted and a fatal result followed in twenty-one days. One patient died of intercurrent diphtheria six weeks after operation. One patient died of pneumococcus peritonitis, a condition which is common enough to be borne in mind whenever there is pneumococcus inflammation. There have been three instances of it in the hospital within two years.

The eleventh patient, a child of four years, was brought to the hospital in a condition of very great prostration, gasping for breath, eighty-two times a minute; temperature 103° F.; pulse 124. The pus was liberated by an incision between the ribs, which was made without narcosis. Death occurred three days later, presumably from the effect of empyema and the pneumonia with which it was associated.

The study of these fatal cases impresses one with the importance of considering the diseases of which empyema may be a complication. In many instances it is not to be treated as a disease by itself. It exists as a complication of tuberculosis with a frequency which increases with the age of the patients. It exists as a complication of pneumonia in a large proportion of cases. The pneumonia which usually precedes it does not always cease before the empyema begins, and may pursue its peculiar course, involving one part of the lung after another while the empyema exists. If the pneumococcus inflammation involves the peritoneum, the pericardium, or a joint, or one or more of the bones, we have still further complications which may be of the utmost gravity. In this series of cases there were no complications in the cases of streptococcus empyema, but one must always bear in mind the possibility of such an occurrence.

It is evident that treatment which is based on a single line of procedure must fail to meet the requirements of patients who are really suffering from different lesions, and that the scope of treatment should be sufficient to meet the different pathological conditions which exist.

Ultimate Results.—Many of the patients have been examined at various periods after the operation. The group of forty *simple cases* were all in good condition when they left the hospital; twenty-seven of them have been examined since that time; eleven four to seven years afterward; ten one to three and a half years afterward; six three to nine months afterward.

One patient who was seen five and a half years after operation had developed phthisis. All the others were in good general health; they had good chest expansion and good respiratory murmur, and no noticeable lateral curvature of the spine. Chest measurements were made of nine of them and in no instance was there a difference of more than half an inch in the circumference of the two sides. The average difference was less than one-quarter of an inch.

The group of twenty-four protracted cases gave the following record: Seventeen have been seen since leaving the hospital; one has died since leaving the hospital; six could not be traced; five were seen four years or more after leaving the hospital; one was seen three years after leaving the hospital; three after two years; five after one year; three, respectively, ten, seven and one and a half months.

Thirteen of them had good chest expansion and no lateral curvature, or only slight lateral curvature. Four had marked retraction of one side of the chest and marked lateral curvature. Two of the latter had each a small discharging sinus when last seen.

The late examinations of these patients are most encouraging. The finding of so many of them in good health is most gratifying and justifies us in giving very favorable prognosis in these cases.

Recovery after a simple empyema seems usually to be complete; no noticeable difference remains in the chest.

In the protracted cases the resulting chests are much better than might be expected. In more than three-quarters of them the resulting deformity did not interfere with good health and a moderately active life.

Summary.—(1.) For simple cases of empyema the folowing treatment is used: Excision of about one and a half inches of the seventh or eighth rib in the posterior axillary line; light ether anesthesia is usually employed; the purulent coagula are removed; short rubber tubing, cut partly across, doubled and held by large safety pins, is used for drainage; abundant gauze dressing is applied and changed when saturated.

(2.) If the patient's condition contra-indicates general anesthesia an incision into the chest may be made between two ribs under cocaine anesthesia.

(3.) Aspiration is only used to give temporary relief in patients who are in great distress from the pressure of the fluid, or temporarily to relieve the second side of a double empyema after the first side has been opened.

(4.) The patients are allowed out of bed as soon as is practicable, and the expansion of the lung is encouraged by forced expiration.

(5.) Irrigation is only used where there is a foul smelling discharge from necrotic lung tissue.

(6.) Secondary operations are not done until good opportunity has been given for healing; usually three or four months should have elapsed after the primary operation, and there should have been no noticeable improvement for about a month.

(7.) In the secondary operation the expansion of the lung should be encouraged by incising, stripping back, and, if necessary, removing portions of the thickened pulmonary pleura.

(8.) The examination of forty-four of the patients at long periods after operation indicates that recovery is usually complete in the simple cases, and that there is surprisingly little deformity in most of the severe cases.

PATHOLOGY OF EMPYEMA.

BY DAVID BOVAIRD, JR., M.D.,
OF NEW YORK.

As indicated by the cards of announcement, the facts and opinions of the writer relative to the pathology of empyema are based upon observations made in the autopsy room of the New York Foundling Hospital. The material at hand includes a total of 101 fatal cases of empyema in children ranging in age from seventeen days to eight years. It is to be remembered that more than two-thirds of the wards of this institution are cared for by nurses outside the institution in various parts of the city and its environs. Whatever seems remarkable or unusual in the observations is therefore to be accounted for, not so much upon the basis of the conditions peculiar to large institutions for children, as to the age of the patients upon whom the observations were made.

Empyema is much more frequent both relatively and absolutely in infancy and childhood than in adult life. Witness the following table from Albutt's System:

EFFUSION	M.	F.	DIED	UNDER 5	-10 y.	15 y.	20 y.	30 y.	40 y.	50 y.	60 y.	60 y.+
Non-Pur.	465	186	48	25	59	50	54	179	149	85	35	15
Purulent	155	61	48	53	32	15	22	48	17	23	6	0

It is a striking illustration of the neglect of the material for observation and study offered by children that in the face of this fact the prevailing opinions relative to empyema are very largely based upon studies of the disease as it occurs in adults.

The affection is more common in children and is also unhappily much more fatal, so that abundant opportunity is given to study the pathological lesions in such an institution as the New York Foundling Hospital.

It would be a happy result of this meeting if it did but serve to direct attention to the rich field for investigation in this line offered by our clinics and hospitals for children.

By the term empyema we understand a purulent pleurisy, an inflammation of the pleura accompanied by the effusion of serum, fibrin, and pus. The affection is in the majority of cases unilateral, but not infrequently it involves both sides. In our series of 101 cases, 77 were unilateral, 24 bilateral. Of the unilateral 36 were right-side effusions, four left.

Not only is the affection regularly unilateral, but, as a rule, a part, not the whole, of the pleural sac is involved in any given case. Usually it is the pleura covering the lower lobe that is found inflamed. The part of the membrane involved is thickened (swollen), congested, hazy and roughened.

In the rare instances where tuberculosis and empyema are associated, the pleura may be found studded with miliary tubercles. In six of the 101 cases there was tuberculosis of the bronchial lymph nodes or lungs, or both. In only one case were miliary tubercles found in the pleura itself.

The characters of the effusion vary with the proportions of its several constituents, serum, fibrin, and pus. In a small number of cases it is thin, turbid serum, sometimes stained reddish from admixture of blood. In a larger number of cases it is a frank pus of moderate consistency, and of a gray, pale yellow or greenish tinge.

But the most frequent or most typical effusion is the thick creamy exudate, of such consistency that it will not flow, will not sink to the dependent parts of the pleura, but remains plastered like a mortar on the affected area of the pleura, or when the lung is removed it can be scooped out of the open pleura with the hand. These thick exudates regularly have a pale greenish color.

It is proper here to remark that it is impossible to draw a sharp line of division between sero-fibrinous pleurisy and empyema. Possibly effusions such as have just been described do, at times, resolve without the formation of pus, but, as a rule, the thick effusion liquefies and a creamy pus results.

This unusual consistency of the exudate in the empyemata of children is of the greatest importance, especially in relation to diagnosis by aspiration.

The effusion in empyema of children is regularly odorless; in only one of our long series was it strikingly foul.

The effusion is regularly found in the posterior part of the pleura and may be free or shut in by adhesions. Sacculation is much more frequent in children than in later life. Especially are the thick exudates just described likely to be closely shut in.

The location of such sacculated effusions in children is sometimes most surprising. In one case seen last year, and which has been reported in detail by Dr. Holt, in a boy of two and one-half years, whose temperature had run a septic course for several weeks without satisfactory explanation, two small sacculated collections of thick creamy pus, each amounting to from one to two ounces, were found; one on the diaphragmatic surface of the right lung near its anterior border, the other on the left side at the base of the lung and close to the spine. The very last case examined had a sacculated effusion at the apex of the lung behind. I have seen such a sacculated effusion directly beneath the clavicle. Morphologically the effusions contain pus, fibrin, bacteria, rarely blood corpuscles, or endothelial cells from the pleura.

The quantity of the effusion is, in the great majority of cases strikingly small, usually ℥-2, and rarely indeed exceeding ℥-8. In children under the age of eight years, the writer has never seen pleural effusions approaching the large amounts (1,000 to 2,000 c.c., Simmonds; 2,000 to 5,000, Hofmokl) reported by some observers.

So far as our experience goes, the empyemata of children do not perforate either through the chest wall or in any other direction. In a number of instances small abscesses of the lungs have been found to have ruptured into the pleura, but in no instance has the reverse process been observed.

The writer does not wish to suggest that such perforations may not occur in children but simply to emphasize their rarity on the basis of the experience of the Foundling Hospital.

The condition of the lung in empyema has important bearings, especially in relation to the etiology and prognosis of the pleural process. Particular care has been exercised in investigating this point and the results may be briefly summarized as follows:

The lungs were compressed, without other lesion, in 35 cases and consolidated in part in 56 cases. The consolidation was lobar in 10; bronchial in 27; indefinite in 14; associated with tuberculous lesions (miliary tubercle or tuberculous pneumonia) in 4; associated with small abscesses in 6; associated with gangrene in 5.

The frequency of the occurrence of bronchopneumonia in association with empyema is very striking, as a contrast to the conditions found among adults.

No other importance should be attached to it. Etiologically, as the researches of Fraenkel, Weichselbaum, Kreibich, Wollstein and others have shown, lobar and bronchopneumonia have the same origin; in the great majority of cases the pneumococcus has been found to be the exciting agent of both.

The abscesses found in the lungs in these cases are regularly of the small bronchiectatic type.

The gangrene of the lung was usually secondary to diphtheria or some other septic process about the mouth or throat.

Naturally it is not possible to definitely classify these consolidations with reference to their time relations to the empyema.

In some instances the consolidation is marginal in the portion of the lung compressed by the effusion and it would seem proper to infer that it was secondary to the empyema. Clinical experience, as well as our knowledge of the routes of infection for the pleura, would lead us to believe that in the great majority of cases the pulmonary consolidation was primary.

The number of cases in which the lung presented no lesion but compression (35 per cent.), is striking. Nor will it do to explain away this high percentage on the hypothesis that a pulmonary lesion had been present before the empyema but had resolved before death. The great majority of these cases have been so acute and fatal within such brief periods (even two or three days) that we must believe that the conditions found at autopsy were substantially those present during life.

The associated lesions of empyema, apart from those of the lung, are essentially acute inflammatory lesions of the other serous membranes. These were found as follows: Acute pericarditis, seropurulent, 11 in all; nine times alone; once with meningitis, and once with peritonitis; acute miningitis, three in all; two alone, and one with pericarditis; acute peritonitis; once with pericarditis.

While the frequent involvement of the pericardium is readily explainable by its close juxtaposition, the association of the meningitis indicates an infection by means of the blood with some special susceptibility of the serous membranes.

Bacteriology of Empyema.—Netter's results were as follows: In 109 cases, 28 in children, eight in adults, he found:

Pneumococcus, children, 53.6; adults, 17.3; pneumococcus and streptococcus, children, 3.6; adults, 2.5; streptococci, children, 17.6; adults, 53.0; staphylococci, adults 1.2; tubercle bacilli, children, 6.5; adults, 25.0; saprophytic organisms, children, 18.7.

Koplik found in twelve cases in children: Pneumococcus alone, 7; streptococcus, 3; staphylococcus, 1; tubercle bacillus, 1.

Prince Ludwig Ferdinand in twelve cases found: Pneumococcus in 2; streptococcus in 5; tubercle bacillus in 2; pneumococcus and streptococcus in 2; streptococcus and staphylococcus in 1.

Pansini found in eight cases: Pneumococcus in 2; tubercle bacillus in 2; streptococcus in 1; staphylococcus in 1; pneumococcus and tubercle bacillus in 1; sterile in 1; total, 8.

Prudden found in twenty-four cases: (1) Simple cases, 8; streptococcus, 7; staphylococcus, 1. (2) Metapneumonic cases, 11; pneumococcus, 9; streptococcus, 1; staphylococcus, 1. (3) With tuberculosis, tubercle bacilli, 1. (4) Fetid exudates, 4; several forms of bacteria, not identified; staphylococcus, 1.

Holt found nineteen cases in children: Pneumococcus, 14; streptococcus, 3; pneumococcus and streptococcus, 1; staphylococcus, 1.

It has, therefore, been shown that in children the great majority of empyemata are due to the pneumococcus. It is also known that the pneumococcus is regularly associated with the thick creamy exudates above described. In the cases where the fibrin is less abundant in the exudate, which is therefore thinner, the streptococcus or stapyhlococcus are regularly found.

A much debated question in relation to the bacteriology is the frequency of the tubercle bacillus. It is a safe assumption that in children at least, primary tuberculosis of the pleura (that is, tuberculosis of the pleura without preceding lesion elsewhere) is extremely rare. In our series of 101 cases of empyema we found tuberculous lesions of the body in six only. In two of these they were limited to the bronchial nodes; in the remaining four the lungs and nodes were affected; in one case only were tuberculous lesions of the pleura itself observed. Without bacteriological examination of the exudates, we may infer that at the most 6 per cent. of these cases were tuberculous. In all probability the percentage was somewhat lower.

The points in the pathology of empyema upon which the writer would lay emphasis are:

1. Its frequency in children.
2. The frequency of bilateral cases.
3. The impossibility of drawing sharp distinction between serofibrinous pleurisy and empyema.
4. The creamy consistency of the exudate in many cases.
5. The frequency of sacculated effusions.
6. The frequency of pneumonia, especially bronchopneumonia, as a preceding or accompanying lesion.
7. So far as concerns the bacteriology of empyema, the pneumococcus is present in the great majority of cases in children, especially in the thick creamy exudates. The streptococcus or staphylococcus pyogenes is found in a much smaller percentage of cases, especially in those not associated with pneumonia and characterized by thin purulent exudates.
8. Tuberculosis is present in but a small per centage (6 per cent.) of cases.

BRONCHIECTATIC ABSCESS OF THE LUNG; WITH THE REPORT OF A CASE TREATED SURGICALLY WITH SUCCESS.

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Dilatation of the bronchi may develop at any age. A single case of congenital bronchiectasis has been reported.[1]

When a bronchiectatic cavity becomes of such shape that it ceases to be well drained its contents become putrid and a bronchiectatic abscess results. The causes of bronchiectasis are diminished resistance of the tissues following prolonged sickness and extra strain from chronic cough of any kind. Sometimes the element of strain seems to be the sole cause, as in Borchert's[5] autopsy, where stricture of a primary bronchus was found on the left side, with several large bronchiectatic cavities in the left lung.

Cases in which a tumor or an aneurism presses upon or a foreign body partially occludes a bronchus come under the same head. The majority of cases, however, develop after bronchopneumonia in some of its forms, sometimes associated with tuberculosis of the lungs or bronchial glands, and under these conditions diminished resistance and increased strain of the tissues are both present as possible causes.

Bronchiectases are described as either simple fusiform, cylindrical, or sacculated. The fusiform is the commoner variety and in it the condition is apt to be more general throughout the lung than in the saccular form. In the saccular form single or multiple cavities more or less localized are the rule, but the condition is so often coincident with fusiform dilatations in other parts of the lungs that the two forms seem to be earlier and more advanced stages of the same process.

Tuffier[3] found that both lungs were involved in about half the cases, but that one was usually more extensively involved than the other. Sacculated dilatations in both lungs have been rarely found. The walls of bronchial dilatations are usually infiltrated with round cells; the epithelium is desquamated and the cartilages sometimes disappear. The contents of the cavities may become infected and the sputum expelled from them intolerably foul, the condition being a bronchiectatic abscess.

It is with the infected saccular bronchiectatic cavities that surgery has to deal. The symptoms of bronchiectasis include a chronic cough occurring in paroxysms and resulting in the expectoration of a mass of mucus, pus and sometimes blood. This is frequently accompanied with vomiting. If sacculations exist the retained pus may become fetid and septic, so that secondary symptoms of pus-intoxication are presented. Loss of flesh is not marked. Irritability of temper is frequent. The onset of bronchiectasis is insidious, usually following some disease accompanied with chronic cough, as bronchopneumonia, whooping-cough, or latent phthisis; so that all that can be obtained by way of history is the fact that subsequent to the primary disease the patient has for many months had paroxysmal fits of coughing, possibly occurring only in the morning and ending with expectoration of an ounce or two of extremely viscid mucopus. Ordinarily the attacks of cough are more or less regular in their time of recurrence, being apparently brought on by overflowing of the comparatively insensitive cavities, the pus causing reflex cough as soon as it reaches and irritates the normal mucous membrane of a bronchus. Irritation at any time is apt to bring on a spasm which differs from the regular paroxysms only in the quantity of matter expectorated. The sputum contains pus, bronchial casts, crystals and sometimes blood. It varies in odor from a sickly sweetness to a fetor so foul as to make the whole room or ward which a patient occupies unbearable for others. The odor is noticeable at all times in the breath and especially during coughing.

The principal conditions from which bronchiectatic abscess must be differentiated are: (1) Tubercular cavities, (2) lung abscess, (3) gangrene of the lung, (4) actinomycosis, (5) hydatid cysts.

1. Differentiation from tubercular cavities may be impossible, as pulmonary tuberculosis may be coincident with bronchial dilatations.[5] The presence of tubercle bacilli in the sputum would not exclude bronchiectasis, but their absence in a case with slight fever and general bronchitis and in which the cavity formation was apparently not progressive would confirm the diagnosis of its bronchiectatic nature. Comparatively good nutrition of a patient having a cavity of long standing would tend to exclude a tubercular process as the cause of the cavity.

2. Bronchiectatic abscess must be distinguished from abscess of the lung by the extremely coarse,

moist râles which usually occur throughout the bronchiectatic lung, even in the lung which has no cavity; also by the long history in bronchiectasis contrasted with the acute history and high temperature and more marked sepsis of pulmonary abscess. The existence of pyemia or the history of some previous operation which may have given opportunity for metastatic infection suggests pulmonary abscess. The pus expectorated from a pulmonary abscess may contain particles of lung tissue and may be less fetid than in bronchiectasis.

3. Gangrene of the lung would be excluded on grounds similar to those excluding abscess, except that the foulness of the odor is greater; the absence of the general symptoms peculiar to bronchiectasis being the main point.

4. In actinomycosis of the lung, unless the cavity communicated with a bronchus, no purulent sputum would occur, hence there would be no confusion of symptoms. If an opening did exist a bacteriological examination of the sputum would settle the diagnosis.

5. Hydatid cyst of the lung is rare. If it existed with an opening into the bronchus, characteristic hooklets would be detected microscopically; if there was no opening, it could not be confounded with bronchiectasis.

At times differential diagnosis before operation may be impossible, but in these cases if localization of a pus-containing cavity can be accomplished the treatment should be the same. If a cavity containing parasites or putrid material or pus can be localized it should be drained. Means for localizing the cavity are auscultation, percussion, aspiration and the X-ray. None of these methods are exact, but in many cases they have been sufficiently helpful to enable operators to find the cavities.

The physical signs vary according to the condition of the tissue surrounding the bronchi. The percussion-note after a bronchiectasis has been recently emptied by cough is tympanitic, though it may be muffled by peribronchial infiltration. By auscultation coarse bronchial râles and respiratory sounds varying from bronchial to amphoric are heard throughout the thorax. The extremely coarse, moist râles of a typical case are so characteristic as to be easily recognized if they have once been heard.

Aspiration is of great value. The needle, which easily becomes plugged in passing through the consolidated peribronchial tissue, must be cleared, and care must be taken to prevent having the cavity emptied by the spasm of cough which the pain may provoke. What seems on percussion to be a single fair-sized cavity may really be two small ones with a solid portion of lung between, into which the needle[2] may pass. In one of Tuffier's cases it was proved at autopsy that the exploratory needle, avoiding both cavities, had passed directly into such a partition. Aspiration may be practised both before and after thoracotomy, and in the latter case, if once the cavity is found, the needle should not be withdrawn, but should be left as a guide until the cavity has been effectively opened.

I have found the report of but one case of bronchiectatic abscess in which the X-ray was used.[5] Borchert used the X-ray in one of his cases of multiple bronchiectatic abscess; the shadow was very general and he considered it due to peribronchial inflammation. The diagnosis was verified after death. He did not consider the X-ray very helpful. Williams[8] located an abscess of the lung by means of the X-ray and Monks evacuated pus and gas.

Tuffier has employed radiography of the lungs for localization of various lesions; in four cases the result was positive[9]; in one case it was doubtful, and in three cases it was negative. The negative cases were: (1) A living hydatid cyst; (2) the patient was a child of six years; (3) intralobular pleurisy in which shadow got behind the cardiac dulness. Placing with these my own case, we have the X-ray positively helpful in six out of 11, doubtful in two and negative in three. With improved technic in the use of the X-ray and skill in interpreting radiographs, the percentage of positive results should increase.

A more radical method of exploration has been practised by Tuffier, which is described as extrapleural palpation of the lung. By resecting one rib and then freeing the costal pleura from the inner surface of the adjoining ribs he was able to stretch the pleura sufficiently to palpate the lung without rupturing the pleura. He succeeded in finding the abscess and leaving the pleura adherent, and was able to open the abscess without opening the pleural cavity.

Having determined the existence of a cavity connected with a bronchus, and having determined its position by percussion before and after violent coughing, by auscultation, the Roentgen ray and, if possible, successful aspiration, we have to decide on treatment. The medical treatment includes the inhalation of creosote,[10] carbolic acid, or thymol, or the injection of menthol and guaiacol in olive oil. All these methods are unsatisfactory.[11]

The surgical treatment includes: (*a*) Drainage through the bronchus, brought about by compressing the lung, allowing aseptic air or nitrogen gas to enter the thoracic cavity through a hypodermic needle during inspiration (Murphy[4]). This operation is repeated on alternate days. Manual compression of the lung through the thoracic wound has also been suggested. (*b*) Drainage through the thoracic wall, external drainage.

The first step in any pneumotomy is to excise a portion of one or more ribs, the number to depend on the strength of the patient and on the exactitude with which the cavity has been localized. If several ribs are to be excised the U-shaped incision of Schede or a succession of parallel incisions over the ribs may be used. After excising the rib or ribs, leaving the periosteum in the usual way, any one of three conditions of the pleural cavity may present itself—a normal pleura, an adherent pleura, a pleura containing pus or fluid. The pleural cavity may be normal and yet an abscess exist in the lung.

Tuffier[8] believes that in 87 per cent. of all septic conditions in the lungs there are adhesions over the focus, but it is impossible to be sure of this from the history. For example, in one case of Quincke,[6] in gangrene of the lung of 12 months' duration, no adhesions were found. In bronchectasis adhesions are seldom found. Where the pleural cavity is normal it should not be opened if avoidable, for fear of infection or of collapse. The death-rate of lung abscesses operated upon by the open method in cases of uninflamed pleura is very high. If the pleura is normal we can occasionally see the moving lung through it. Adhesions may be produced by packing the wound with a mild irritant, as dry sterile or iodoform gauze. (The earlier writers applied irritant pastes to the pleura.) Or the pleural cavity may be opened and the lung seized and stitched into place by attaching the pulmonary pleura to the costal. In this method deep sutures should be avoided for fear of entering septic portions of the lung.

If the lung is found to be adherent, or if adhesions have been artificially produced, the accomplishment of which requires from three to eight days, we may localize the abscess by the aspirating needle and then with the needle as a guide cut into the lung. This may be best done with the Paquelin cautery at red heat. Beck[7] has employed a fine cautery point which fits into a grooved platinum director as a trocar fits into a canula. The lung may also be divulsed or cautiously cut, vessels being detected by palpation and when found controlled with curved needles carrying ligatures. Personally, I feel that the low-heated cautery is the best instrument. Owing to the amount of fluid in the lung tissue, progress by this method is very slow. But if the instrument is frequently withdrawn and burned clean the result is satisfactory. Any attempt at haste, by using greater heat, results in loss of time from hemorrhage and increased oozing. After reaching the point at which the aspirating needle detected pus, the burning should be stopped, even if no cavity has been encountered and the wound packed with gauze and dressed like an empyema wound. Good results may be accomplished even when the cavity is not opened at operation, as in Oehler's[9] case of gangrene of the lung, in which incision of the lung by thermocautery to the depth of five cm. was done without reaching pus. Two days later the pus broke through the wall of the cavity into the wound. The successful cases have healed completely in from two and a half months to two years.

Of cases of bronchiectatic abscess, Borchert had one cure and four deaths, but this does not represent a fair percentage, as three of his patients were tuberculous and had other lesions.

The objections to surgical treatment are: That the condition is more or less general; that the localization is obscure; that even if one or more putrid cavities are obliterated others may form, owing to the general impaired resistance of the bronchial walls; and lastly, the dangers incident to all operations. The points in favor of operation are the following: The foul smell which disturbs the patient and his friends can be removed; the nauseating taste of the pus during expectoration is no longer present; the frequent vomiting ceases; the quantity of sputum is diminished; and, most important of all, the septic focus which may lead to metastatic abscess in other organs, including the brain (Osler,[11] Borchert,[5]), is obliterated and the danger of fatal complication removed. Besides these more or less specific advantages, the general malaise and slight irregular fever due to absorption is cured by the destruction of those cavities which have become septic.

In the case which I show this evening these gains have accomplished such improvement in nutrition as to give promise of no further recurrence, and have so changed the whole character of the patient's nutrition that, though she still has bronchiectasis throughout both lungs, there is absolutely no fetor to the sputum and no disagreeable odor to the breath.

N. E., aged three, was admitted to the Babies' Ward June 18, 1901; weight, 25 pounds; temperature, 99° F.; pulse, 120; respiration, 40. Her mother's report was that 14 months previous (April, 1900) the child had bronchitis and was treated at various dispensaries. The cough persisted for over a year. The odor was very foul all the time; so much so, indeed, that the mother could not get any one to clean the child or even to stay in the room with her. She had frequent "feverish spells," was slightly but progressively losing flesh, coughing frequently, and raising large quantities of pus, sometimes blood-streaked, of horribly foul odor. The general appearance of the child was good. The tongue was slightly coated. There was cavernous breathing over the right side, around the angle of the scapula, and below it an area of two inches in diameter, with metallic râles. Coarse mucous râles were heard all over both sides of the chest.* Aspiration of the seventh right interspace gave a thin, purulent fluid of very foul odor. The radiograph.† shows a questionable area at the point of aspiration.

Operation.—First stage, June 28, 1901: Resection of $1\frac{1}{2}$ inches of eighth rib on right side midway between the vertebral column and the posterior axillary line. Iodoform gauze strip was introduced to cause pulmonic pleura to adhere to the costal pleura. The pleural cavity was not opened.

Second stage, July 1, 1901: Pulmonary pleura and lung found glued to the costal pleura at the point where the rib had been resected. Aspiration was done twice, the second attempt to locate pus proving successful. The thermocautery was then used with the aspirating needle as a guide and the lung tissue was burned to the depth of about 1¼ inches. A medium-sized bronchus was opened, as shown by the appearance of bleeding at the mouth. It could not be definitely determined whether there was more than one cavity, as the wet lung tissue shriveled against the cautery and was drawn to it as it contracted under the heat. A rubber tube wrapped with gauze in the shape of a peg-top was inserted and covered with a loose gauze outer dressing. The condition of the patient after operation was good. For about one week she coughed up less and seemed better, but on the twelfth day she expectorated about 1½ ounces of mucus and pus and after this coughed up a good deal of pus daily, frequently vomiting at the same time. For some days the patient suffered from diarrhea and was treated for that without regard to her thorax, but on July 20 a third stage of the operation was performed, consisting of more extensive cauterization. At this operation the principal cavity was evidently opened and later obliterated, for from that time no more foul pus was expectorated and the thoracic wound rapidly closed. Healing was complete the first week of September, 1901.

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* The physical examination was made by my colleague, Dr. Maisch, to whose courtesy I am indebted for the case.

† By Dr. F. N. Wilson.

Mother's statement eight months after the operation, April, 1902: "She coughs up some every morning, but it never smells bad; it used to be awful to be in the room with her. She used to mope around and be different from other children, and now she plays and runs all day."

The amount of mucus raised mornings was found to be about half an ounce. The extremely coarse râles were still present, showing that the general bronchiectasis was not in any way improved. There was no odor to the sputum.

Conclusions.—Whereas the cases reported by Borchert, varying in age from twenty-one to fifty-two years, resulted in four deaths (one three months after operating) and one cure (requiring two years for healing of wound) making the outlook for adults seem bad, the great improvement in the case shown and reported tonight, even though not necessarily permanent, certainly justifies operative interference in cases of bronchiectasis which have progressed to abscess formation. Analysis of Borchert's cases shows that the long standing of the disease and the ravages revealed at autopsy were the causes of the fatal result, and they only emphasize the importance of early diagnosis and operation.

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A CASE OF HEPATIC ABSCESS.*

BY EMMA W. DEMAREE, M.D.,
OF ROCA, NEB.

THE interest of the case which I have to report depends largely upon the fact that the abscess developed in a puerperal woman, the septic condition produced by it being so like puerperal fever as to cause great anxiety and many misgivings until a positive diagnosis became possible and it was proven that the infective agent had not gained entrance by way of the parturient canal.

Mrs. M., aged twenty-two years, primipara. Had been well except that for about four years previous to pregnancy she had suffered from attacks of what she described as "stomach trouble." For these she had received treatment for a time by a physician in a neighboring town, but finally abandoned it as it seemed unprofitable. She does not remember that pain at this time was referable to the right side. She thought it was chiefly in the stomach and in the back, but it was paroxysmal, and it seemed quite possible that the symptoms may have been due to a cholelithiasis.

During pregnancy there were none of these attacks. For the first four or five months she suffered much from nausea, but otherwise felt well.

I first saw her during the seventh month when she came to engage my services for her confinement. I found the pelvic measurements normal; the kidneys were acting well, as they continued to do throughout the period of gestation, and she was in good general condition.

On July 17, 1901, she gave birth to an eight-pound boy after a labor which, though severe, was normal. There was a partial rupture of the perineum which was sutured. The stitches were removed on the fifth day, the tear having healed nicely. For a few days after delivery there was difficulty in emptying the bladder and a catheter was used. There was no fever at any time up to the tenth day. I visited her July 26 and found temperature and pulse normal and the patient feeling so well that she asked to be allowed to get up, which request was not granted.

On the morning of the 27th she complained of pain in the right side and back, in the region of the liver, and of a general malaise. I was sent for that evening. Severe, lancinating pain had come on suddenly in the afternoon, accompanied by vomiting. When I reached the place the acute pain had subsided, but there was marked tenderness in the region of the gall-bladder. The patient had been unable to lie on the left side since the morning, and was most comfortable when lying on the right side. Pulse 120, temperature 101° F. I could find no tumor and did not succeed in palpating the liver. A thunder-storm kept me at the house during the night. About two A. M. there was a severe rigor, followed by a temperature of 105°, with profuse sweating. That there was pus was evident, and it seemed to be in the right hypochondrium. The fact of her recent delivery led to fears that the uterus might have been the original source of the infection,but I was unable to find anything in its condition or anything in the pelvis to indicate that such was the case. Pain and tenderness were wholly confined to the region of the liver, and, after the first day, were more marked posteriorly than anteriorly. After that time pain was not a prominent symptom, being felt only upon moving or taking a deep breath. Liver flatness extended as hign as the fourth interspace; there was interference with respiration on the right side and a troublesome cough developed. There was no bulging of the intercostal spaces. Neither my husband, who saw the case with me, nor I, could make out any downward enlargement of the liver. There was no swelling nor was there anything which seemed to indicate the exact location of an abscess or abscesses if such existed. The patient was sallow but there was no jaundice. Pulse remained constantly above 100 and was not often below 120. Temperature ranged between 100 and 104° F. Sweating was profuse when the patient slept or was moved; vomiting was a distresing symptom, and on the 29th there was a persistent hiccough.

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* Read before the Nebraska State Medical Society, May 7, 1902.

Treatment was directed chiefly toward securing elimination and sustaining the patient. Calomel with salts or oil, and strychnine were the chief medicinal agents used. Some quinine was given at first, and various attempts were made to lessen the irritability of the stomach. Sedatives were given occasionally to induce sleep, but after the first day the pain was not severe enough to require an opiate. High enemata of salt solution were given several times daily, and frequent sponge baths were ordered. Exploratory puncture was talked of, but the family was averse to anything that savored of an "operation" and the indications as to the best place for aspiration were so obscure that we hesitated about trying it.

On reaching the place on the morning of July 30 I found decided improvement in the condition of the patient and learned that during the night a considerable quantity of bloody pus had been passed by the bowel. Those in attendance said that she had also expectorated material which had a similar appearance. None of either discharge had been saved and there was no more expectoration, the cough gradually subsiding, so that one can only surmise that the abscess may have ruptured both into the lung and into the intestine. Pus, containing blood-flecked masses, continued to pass by the bowel, and it proved to be full of what, under the microscope, looked like microtome sections of liver in a state of cloudy swelling. After a large amount of this pus had been discharged, a black sand began to pass, a large quantity passing with each stool for several days. This seems to furnish a clue to the original irritant.

Although improvement was rapid I did not give a very favorable prognosis, especially as to the time likely to elapse before the patient could hope to be well. What I was able to glean from the literature led me to believe that, at the best, recurrences might take place for many months, if not for years. By August 5 the pulse and temperature were normal, the appetite had returned and the patient was gaining strength and feeling hopeful. There was no longer pus nor sand to be detected in the feces. This state of things continued till the 11th when there was a chill, followed by a recurrence of the original symptoms, only in a milder form. With the use of oil and enemata there came again a discharge of pus containing liver tissue, and this was followed, as before, by the gall sand. Twice thereafter, with intervals of a few days these attacks recurred, the discharge of sand being preceded each time by that of pus. The family having learned the significance of these attacks and knowing what to do, I did not see the case after August 16 until the 31st when I was called because the patient had had chills and fever for several successive days, with intervals in which she felt quite well. This proved to be a malarial attack and yielded readily to quinine. There was no further accumulation of pus, the last having been seen in the third week in August. At intervals of two or three weeks she passed and still passes the black sand. For a time this was preceded by a day or two of what the patient believed to be fever, and was accompanied by more or less pain. Now the prodromal period consists of a day or two in which there is possibly slight fever, but nothing that amounts to pain, only a sense of fullness and discomfort in the right hypochondrium which disappears with the discharge of the stones.

At a time of which the family is uncertain, but which they think was last November, there were passed at two different times in advance of the sand, stringy masses which they describe as looking like pieces of emptied intestine, but consisting partly of a "gristly" material. These were bottled with the intention of bringing them to the office, but were later destroyed. They were doubtless the remains of the pus sac and the inflammatory exudate thrown out in connection with the rupture of the abscess into the colon. That the rupture was into the colon rather than the small intestine the unchanged condition of the blood and liver tissue evacuated seems to show.

By the middle of October the patient was able to do her own work and care for the baby, and she is now well and strong and free from the attacks of the "stomach trouble" of which she formerly complained. What to do about weaning the baby was a question that caused considerable anxiety and must, I think, always do so under similar conditions. The course pursued seems to have worked well in this case, but I should feel doubtful if confronted with similar conditions. During the height of the septic condition there was almost complete suppression of the flow of milk and the child was given artificial food, but there were only one or two days when it was not put to the breast at some time. Efforts were made to keep the milk, and except for a short time preceding the first evacuation of the abscess, the baby was compelled to take what little there was before being given other food. By the time he was three months old no artificial food was needed, and he has grown and flourished as he did not do when fed chiefly with modified cow's milk. Some of the relatives of the patient disapproved of this course, but she herself was anxious to nurse the baby and both parents are now very thankful that he was not weaned.

Did the biliary concretions which seem to have been the exciting cause of this abscess form in the gall-gladder and rupture into the liver or did they originate in the liver?

C. W. Allen in the *Reference Handbook of the Medical Sciences* says that while "the gall-bladder itself is by far the most usual portion of the excretory system of the liver in which calculi originate * * * they may form at any point along the bile passages, even to the very commencement of the hepatic ducts." It would seem that the size and form of such concretions might furnish some indication as to their probable source, and that sand might be more likely to originate in the smaller hepatic ducts than the larger stones, but I find no statement that such is the case.

Another question which arises in connection with the case is, to what extent, if at all, were pregnancy and the puerperal state etiological factors? Since Osler states that "three-fourths of the cases of gall-stones occur in women," and quotes Naunyn as saying "that 90 per cent. of women with gall-stones have borne children," it seems highly probable that pregnancy may be an important causative factor, and that it was such in this case. By furnishing conditions in which the power of resistance of the tissues was lessened, the puerperal state may have had something to do with the pus formation, but that it was not responsible for the entrance of the pus organisms is shown, I think, by the history of the case.

THE USE OF SIMPLE MICROSCOPICAL METHODS BY THE GENERAL PRACTITIONER.*

BY ROBERT L. PITFIELD, M.D.,
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It has been said of the late Dr. Geo. B. Wood of this city that on being called in by another practitioner to make a diagnosis for him, he paused at the doorway of the sick room and making a brief survey of the patient, said: "Doctor, your patient has pneumonia," and then proceeded to confirm this diagnosis by the then newly discovered and applied arts of percussion and auscultation.

It is possible in these days for many to stand at the doorway and make a diagnosis of pneumonia, but before the diagnosis can be confirmed not only must these arts be used but a close analysis of the sputum, blood, urine, etc., must be made, and perhaps the Roentgen rays used; and what looked like a pneumonia from the doorway may be more like an endocarditis when we begin to auscult and percuss, and like a septic infection when we examine the blood with the microscope.

It is the age of refinements in medicine, and upon such refinements as the finding of the tubercle bacillus in sputum, or urine, great principles of pathology, diagnosis, and treatment depend. And these refinements in medicine of to-day are so very essential to at least one department of medicine, viz., that of diagnosis, that one cannot conscientiously practise either general medicine or any specialty without being very near the means of employing them. In short, the microscope must be called in daily to help out in the diagnosis of disease. If one would keep abreast of the times a microscope should be in one's own house, and it is a great comfort to have easy recourse to microscopical methods in emergency. The great aid often rendered to a worried and busy doctor by a five-minute consultation with a good oil immersion lens is often of such assistance in relieving his mind that I might have called the title of this paper the "Comforts of the Microscope."

By means of the histories of very simple cases in every-day practice, I hope to illustrate the value to the general man of certain easy short methods. I have merely sketched the outlines of the history of these patients and will not enter into the minutiæ which are so apt to obscure the salient features of the diseases and their outlines.

A certain amount of technic is necessary, but what I have to describe is of a very simple nature. A good microscope is, of course, the most important requisite. A good American stand will do all that any physician needs. Such a stand with immersion lens and Abbé condenser costs between $80 and $90; this being the greatest expense. A few slides, cover glasses, stains, and reagents, costing at most $20, are needed; a steady table with drawers, a centrifuge, a north light and a Welsbach light are also desirable. A good text-book, such as Mallory and Wright or Simons, will complete the equipment. If one wishes to extend his powers of clinical diagnosis beyond the simple methods described in this paper, a blood-counting apparatus, hemoglobinometer, and stains for differential blood-counting, also a simple microtome will greatly add to the usefulness of the physician as a diagnostician, for every patient, no matter how poor or obscure, has the right when he consults a doctor to have his ailment ferreted out to the last degree by every method known.

Perhaps the most useful of the few methods which I will describe is the examination of sputum for tubercle bacilli. An injection of tuberculin might make the diagnosis for one, but this is not nearly as simple as the examination of the excretion. To find the tubercle bacillus in sputum it is best to have some of the saliva that has been coughed up in the morning, after the mouth has been rinsed with water. A large nummular mass, if present, should be selected, and by means of a wire a small portion, about as big as a match head, may be lifted out and spread on a clean slide. It should be spread evenly and thinly and when thoroughly dry should be heated about twenty seconds in a bunsen or alcohol flame, to bake the dried sputum fast to the glass. It may then be stained with the following, which is the simplest way of making carbol-fuchsin:

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* Read before the North Branch of the Philadelphia County Medical Society, April 17, 1902.

A level teaspoonful of dry fuchsin is added to a four-ounce bottle containing a tablespoonful of alcohol and enough 5 per cent. carbolic acid solution is added in water to fill the bottle. A shake or two complete the solution and the stain is ready for use. To stain the sputum cover the slide with carbol-fuchsin and twice bring it to a boil over the flame; this stains everything a brilliant red. To demonstrate the red tubercle bacilli in such a red background being impossible it is necessary, therefore, to decolorize the background, and this is done by washing in water and treating the red-stained sputum with 20 per cent. sulphuric acid in water for a minute or two. This washes the color from everything but the tubercle bacillus. To study the background and to bring out the tubercle bacillus more prominently it is well to stain for a minute in the cold with Löffler's blue, which is made by adding seven ounces of saturated solution of methylene blue in twenty-eight ounces of 1-10,000 potassium hydrate solution in water. These solutions can be made by any competent druggist. The carbol-fuchsin should be renewed every six weeks. The whole process hardly takes more time than the reading of the description of it, after one has practiced a little.

If the case is tuberculous tiny rods of bright red color stand out on a blue field. If after at least six such examinations, if the case is a very suspicious one, and the tubercle bacillus is not found, one may safely assume that the disease is not tuberculosis of the lungs.

The following cases illustrate the fallacy of relying on physical signs alone and of the value of sputum examination:

Mr. X., a young man of twenty-five, of a fair family and good personal history, consulted me for a slight cough, malaise, feverishness and loss of appetite; he looked thin and was flat-chested. He dreaded tuberculosis and begged me to examine his chest, which I did most carefully. After a prolonged and painstaking search I could find absolutely nothing of any pathological import. There was deficient expansion but no change in respiratory sounds, or relative rate to lead one to suspect tuberculosis or any other disease of the lungs. His condition being poor and there being some cough I examined a small bit of sputum raised with difficulty. It was slightly blood-tinged and yellow. On examination by the method detailed, I found a tubercle bacillus and told him so. After this he was examined by six other men, none of whom could find a thing of any diagnostic import in his chest. He was ordered to another climate and has passed entirely from my view.

In depending upon physical signs alone in this case the patient would have had of necessity to remain in this climate until symptoms of consolidation had appeared.

The following is the history in outline of Mr. B., a man aged sixty-seven years, who was admitted to the Germantown Hospital June 9, 1901. He was anemic and emaciated; he had been in good health until some six months previously when he was seized with a cough which bothered him a great deal. It is sufficient to relate that he was growing weaker and more emaciated every day and his cough was becoming worse. He expectorated a great deal. There was no history of hemorrhage. Physical examination revealed dulness on percussion and increased fremitus and bronchial breathing over the entire right lung. There were large and subcrepitant râles everywhere. The left lung was clear, the heart weak but normal in sounds and size. A bruit could be heard over the right apex near the sternum, and aneurism of the aorta was thought of. Dulness in this region was much increased. In short the man had many signs of phthisis, clubbed fingers, constant cough, hectic fever and appearances, anorexia and emaciation. After remaining in the house four months he had a severe paroxysm of coughing and expectorated a piece of turkey bone an inch and a half long and a half-inch wide. Since tuberculosis was previously suspected his sputum had been repeatedly examined, always with negative results. The diagnosis, finally made, was abscess with septic infiltration of the lung with enlargement of lymphatic glands at the root of the right lung simulating aneurism. The patient died and no autopsy could be obtained.

A few test tubes, a urinometer and one or two reagents are not alone necessary in the examination of a patient's urine. He who depends on heat and nitric acid alone in the diagnosis of nephritis is going to make many mistakes. A careful microscopical examination should be made in all cases, and the following cases illustrate the value of such examinations:

Catherine C., five years old, a child previously healthy and of sturdy Irish-American parentage, in May, 1901, began to develop an adenitis behind the angle of the jaw, on the right side. The adenitis seemed to me to follow some attacks of tonsillitis earlier in the spring. When brought to my notice she was pale and fretful and had very little appetite.

Physical examination showed nothing of any pathological nature in the chest and abdomen. She had some fever every evening and had sweats in the early morning. Local and constitutional treatment was of no avail. I saw her constantly for a month and there was a steady decline in health during that period. At length she complained of pain on urination and a dull pain over the bladder. There was some edema which at first I ascribed to her marantic condition. I examined the urine and found mucus, albumin, pus, casts and many bacilli. I prepared some of the urine by drying and fixing the sediment on a slide and stained it for tubercle bacilli and found thousands of these parasites. Shortly after this a slight cough appeared and an area of dulness was found under the scapula on the right. As is often the case in children I could not secure any sputum for examination.

An intractable diarrhea set in. I examined the stools and found many tubercle bacilli. The child quickly yielded to a generalized infection which I believe began in the tonsils.

That it is possible to have grave uremic attacks with the entire absence of albumin in the urine is a well-established clinical fact. And albumin in moderately large amount may be found in the urine of patients who have never had a headache. The whole matter of urinary examinations, as with many other matters in medicine, is merely relative.

The following case illustrates the value of the microscope in diagnosis of renal disease. It was possible to diagnose this case without recourse to laboratory methods, but the absolute positive knowledge that the disease was nephritis was gained with the centrifuge and microscope.

Mr. H., a gentleman of about sixty years of age, of a previous gouty history of a rather masked character, with exacerbations manifested by slight joint affections and high tension pulse and headache, was suddenly seized in his store in the city with a severe attack of vertigo which lasted for two hours. This was accompanied by a headache, subnormal temperature, and some nausea and vomiting. He rallied somewhat under treatment and was taken home in a carriage to Germantown.

A careful physical examination was made; a tense arterial condition was noted with tortuous temporal arteries, and full vessels between beats. There was no edema anywhere. The heart was examined carefully; inspection revealed diffuse forcible pulsation at the apex, well outside the nipple line and much below the usual situation. The area of cardiac dulness was markedly increased. On auscultation no murmur was detected, but the long booming systole and short accentuated second sound confirmed the diagnosis of increased arterial tension and sclerosis. By most careful examination of the urine I found on measuring it that it was plentiful and of a very pale color and low specific gravity. By Purdy's method of adding salt to the urine and boiling the upper half of it in the test tube a faint haziness was found on one occasion, but this could hardly be called pathognomonic.

Microscopical examination after centrifuging the urine, showed numerous hyaline casts and much uric acid. The urine, I might add, was always hyperacid. By means of sweat baths, dieting, and potassium iodide, the symptoms, such as headache and overaction of the heart, have been greatly ameliorated. The persistent presence of casts in the urine of this patient was the means of making a positive diagnosis.

A similar case is that of Mrs. W., a widow, aged sixty-four years, of gouty antecedent history. She had been troubled some time with cardiac failure which caused extremely irregular pulse, syncope and nausea, with belching of wind from the stomach. Careful examination failed to reveal any cause for this cardiac weakness. There were never, except during the attacks, any dyspnea, or edema, or other symptoms of myocardial degeneration. The area of dulness was slightly increased, but there was little, if any, murmur at the apex. The first sound seemed slightly rough. For a long time numerous physicians had told her that she had simple heart disease and directed treatment solelv to that organ. During a sharper attack of cardiac failure, which lasted for twelve hours, she very nearly died. These attacks were frequent, often as many as two a week afflicted her.

A microscopical and chemical examination of the urine failed to show any albumin whatever, but numerous hyaline casts were seen. Treatment was directed toward increasing elimination and diminishing the nitrogenous elements of the diet and the use of a little strychnine and Basham's mixture, was so happy in its results that for a year she has not had a single syncopal attack. These attacks were evidently renal in causation.

In examining the urine of women one should be careful that vaginal discharges do not contaminate the urine. Important cases should be catheterized. Pus-cells, smegma bacilli, albumin and rarely some rhizopod denizens of the vagina are found in the urine. Those women who have borne children almost always have a few pus-cells in the urine. In pregnant women about to be delivered the urine might give the reaction for albumin in copious amounts and raise grave fears as to the condition of the kidneys. Sometimes the slow leaking away of the amniotic fluid will make the urine, on boiling, resemble that of nephritis. A microscopic examination will revise the diagnosis in such cases.

As already stated the whole matter of urinary examination is a relative one. I have seen an oxaluria cause casts to appear in young people's urine which completely disappeared under some simple dieting and treatment, never to reappear. One should be guarded in prognosis depending upon the finding of a few casts in the urine. The symptom complex should always be the guide.

It is often perplexing to know if pus is gonorrheal or not. A purulent ophthalmia in a child, or a vaginal discharge, may resemble gonorrhea, but a mis-diagnosis can easily be made unless microscopic aid is employed.

A simple smear of fresh pus or solution of dried pus or cotton or linen can be made with great ease; it should be stained with Löffler's blue. After drying the smear and baking it on the slide for twenty seconds in a bunsen flame, if numerous pus-cells are seen containing within them peculiar little bodies like coffee beans and stained blue, one may generally assume that they are the specific germs of gonorrhea and are diagnostic. In cases of great importance the gram method of staining with iodine should be used, or cultures made.

Last year I had to treat three little girls, all under three years of age, with purulent vaginal discharges.

One had a virulent inflammation which was followed by an arthritis of the knee and in the pus I was unable to find a single gonococcus, but many other septic organisms. The vaginitis in this case was due to seat worms invading the vagina.

The other two cases were infants of two years with virulent vaginitis. Both of them came under my care on the same day and both with the same history. Each had slept with her father and both fathers had some complaint which the mothers stated caused them to have pus-stained shirts. In the vaginal discharge from each child I found gonococci in profusion. I believe that each child was infected from the bed linen.

The differential diagnosis of diphtheria and tonsillitis without the use of cultures and the simple direct microscopic examination is possible in 72 per cent. of the cases seen. The remaining 28 per cent. are as a rule wrongly diagnosed. The cultural method, while it is the very best means of diagnosing diphtheria, should be resorted to whenever possible. It is beyond the use of the general man not within proximity of a laboratory.

The simple method in cases in which there is an exudate that can be reached with a swab is in the hands of the average man even with little practice a very reliable one. It exceeds in reliability any other clinical signs of diphtheria or tonsillitis. The means of diagnosis by this simple method consists in rubbing a swab which has been firmly applied to a suspicious exudate over a clean slide, and then when it is dry fix it for twenty seconds in the flame, and then staining for a moment with Löffler's blue washing, blotting with bibulous paper and drying and then applying a drop of cedar oil and examining it with the immersion lens. If the case is follicular tonsillitis, bacillary forms will not be seen, but the stained smear will present a picture of fibrin and cells over which are strewn myriads of cocci, perhaps in chains if the case is streptococcal infection and singly or in irregular groups if staphylococcus infection. If the case is diphtheria, bacilli will greatly predominate, sometimes associated in cases of mixed infection with streptococci. These bacilli are characteristic. They are always curved and in varying degrees. They are not only bizarre in appearance but are irregular in size. Some stain blue throughout; some will appear barred. In contour some are clubbed at one or both ends and some have slender whip-like ends. This irregularity and the curved shape render their diagnosis rather easy, especially if they have in either or both ends little blackish blue granules or spots. These latter are most characteristic, are easily seen and should be found before one can make the diagnosis. They are found in no other bacilli which lodge in the mouth or throat.

The following case will illustrate the value of prompt and correct diagnosis by this method:

Tony L., an Italian child aged four years, recently came to my attention at the Germantown Hospital. I could learn nothing of his history; he was merely a small child with a very sore mouth. The buccal membrane of the right cheek presented the following conditions. A number of what apeared to be apthous ulcers extended along the mucous membrane from the canine teeth to the last molar. The ulcers were large, and instead of being excavated were full of necrotic white tissue. Opposite the last molar tooth was a gangrenous area about as big as a dime. The throat was not sore and there was no membrane. The sub-maxillary gland was swollen and very painful; the skin of the cheek was indurated.

A piece of cotton twirled on a match stick was rubbed over the white exudate and then smeared on a slide, dried and fixed and then stained with Löffler's blue. Typical diphtheria bacilli with chromatin points and of large size appeared together with another bacillus which resembled the bacillus subtilis. Cultures confirmed the simple microscopical diagnosis. Antitoxin was immediately injected and strong solutions of nitrate of silver were applied to the necrotic tissue. The child was removed to the Municipal Hospital, where it recovered. Dr. Welch in a letter tells me that these cultures failed to show the diphtheria bacilli, but the nitrate of silver may have had something to do with this.

In view of the fact that cases of cancrum oris following measles and typhoid have exhibited the diphtheria bacillus on culture makes this case interesting. I cannot relate the previous history of the patient as to other infections; the child may have had measles or diphtheria, or both. There was no way of diagnosing the kind of infection other than by the microscope and the early diagnosis, and application of remedies may have saved the child serious trouble.

I might multiply instances of daily experience with sore throats of a trivial nature in which the diphtheria bacilli were found most unexpectedly, and again I might instance severe membranous sore throats which appeared diphtheritic and which occurred in houses where there were cases of diphtheria, and microscopical and subsequent culture failed to show the bacilli.

The value of simple methods like the ones enumerated is that they strengthen a man's ability to recognize disease with the unaided eye. A man is able to say, "That looks like diphtheria," and then confirm it by recourse to the microscope.

Before the advent of Laveran and his followers, any obscure irregular fever was known as malaria. Many a chronic suppurating fallopian tube, septic endocarditis, typhoid fever, and early phthisis have been drugged with quinine unavailingly. Many an obscure fever can be cleared up by a blood examination, but the limited scope of this paper precludes the discussion of any but that for the malarial parasite.

There are many interesting features in the study of hematology, a differential count of leucocytes, a simple enumeration of the red and white cells, the Widal test, all have a broad application. But these call for more complicated and difficult methods. A cover-glass and a slide are all the apparatus needed in the diagnosis of malaria.

A drop from a finger well cleaned is put on the slide and the cover-glass dropped over it. With a little experience the malarial parasite can be most easily recognized. Recourse to the beautiful plates in Thayer's book on malaria will aid the beginner wonderfully. These plates have been copied in Stengal, Butler and Simon and should be consulted.

If the case is malaria, an experienced searcher will discover very shortly that the leucocytes are very few and far between, and that some of them contain pigment, perhaps. Here and there a body of the same color almost as the leucocytes will be seen, only that its size is smaller. It contains particles of brownish black pigment which may be observed to dance about within the cell. Here and there smaller organisms will be seen in the interior of the red cells, and these may contain pigment also. These bodies are the malarial organism, and I will forego any further remarks about them since a glance at Dr. Thayer's plates will accomplish more than pages of description. The method is the easiest yet described. It is not so difficult as a urinary examination. It may take longer at times when the parasites are few, and in some instances it may be necessary to fix and stain the blood with Löffler's blue or other stains; but this is not often.

William C., aged seven and a half months, was admitted October 19, 1900, to the children's ward of the Germantown Hospital. He was sent in as a case of pneumonia by an able practitioner of many years' experience, and from physical examination it was found that there were some grounds for the diagnosis. In addition to a fever, the child had a cough, some dulness of both lungs over the bases posteriorly and there were also some râles of a character that one would find in a pneumonia in a young child. The body was very anemic and had a large spleen; he was most fretful and did not take his nourishment as often as he should and vomited most of what he did take, and seemed to be rapidly failing. Except for the large spleen, anemia and fever, there was nothing else to suggest malaria, nor was it suspected. There never was a chill nor sweat. The case was puzzling to the attending physician, and a blood examination being made, very numerous tertian malarial parasites were found. Bi-muriate of quinine and urea in one-half grain doses was administered by hypodermic t. i. d., and quinine suppositories also were used. The child got rapidly well and left the hospital cured.

In young children malaria is apt to resemble pneumonia, and it is very rare for children to have chills. The carefully kept chart is typical of a double tertian infection and from it one might get a weighty suggestion but the microscope often reveals bigger and more important hints than temperature charts.

MEDICAL PROGRESS.

SURGERY.

Division of Tendo Achilles in Cases of Equinus.—Although the apparent deformity of the foot in cases of equinus secondary to infantile paralysis is usually greatly decreased by a subcutaneous division of the tendo Achilles, yet the practical results are often far from satisfactory, for a "flail" foot may be the final outcome. R. A. HIBBS (N. Y. Med. Jour., July 15, 1902) reports 18 cases which he has followed for from three to six years since the operation, and thus is enabled to note the changes which have occurred in them. In only three cases did the calf muscles and their tendon preserve a fairly normal size and length. In four others the tendon was only moderately lengthened; but in the remaining cases the calf muscles were greatly wasted and the tendo Achilles was lengthened, flattened and much smaller than normal. In explanation of this result one factor is shown to be the impairment in the action of the calf muscles which necessarily followed the paralysis of the anterior group. This paralysis allows the deformity of equinus, and the points of attachment of the calf muscles are therefore brought nearer together. The muscle later shortens to compensate for this change. Moreover, when the tendon is severed there is still further shortening of the muscle and impairment of its action, for while the points of attachment of the calf are separated this is accomplished by changing the normal relation which exists between the length of the tendo Achilles and the muscle. It thus appears that by lengthening the tendo Achilles there must be still further shortening of the calf. A later and more gradual detrimental change results from the subsequent elongation of the structure which forms the bond of union between the divided ends of the tendon. The loss of the tendon-sheath is thought to be an important factor in allowing the lengthening of this fibrous mass of tissue. So long as such serious modifications of the function of the calf muscles frequently follow this operation the results cannot by any means be considered satisfactory.

Contraction of Iliopsoas Muscle as an Aid in Diagnosis.—Palpation of abdominal viscera is frequently very unsatisfactory on account of the uncertainty of the nature and position of a body felt through several layers of muscles and fat. Although practice greatly increases our powers of interpretation, yet all known aids to palpation are frequently insufficient to allow a correct diagnosis to be made before a laparotomy is performed. S. J. MELTZER (N. Y. Med. Jour., July 19, 1902) believes that much assistance can be obtained in the diagnosis of the contents of the iliac fossæ by causing a contraction of the iliopsoas muscle. During the active contraction of this muscle the palpating fingers perceive an elevation running diagonally in the iliac fossa from the groove between the inferior spine and the iliopectineal eminence to the angle formed by the last rib and the lumbar vertebræ. The more the active flexion approaches a right angle the higher the elevation becomes. In regard to the method it is, of course, necessary that it should be an active contraction, and for the better securing of this the leg should remain extended at the knee and the heel raised a few inches from the bed by flexing the thigh at the hip. If greater flexion is required, the knee must then be bent, but the foot should never touch the bed. Alternate contraction and relaxation of the muscle will cause the prominence to rise and fall on the posterior abdominal wall and thus act similarly to the diaphragm upon the viscera in the upper abdominal cavity. It can be used as a landmark to determine whether a resistance is located on the psoas, or on its lateral or median side. It is thus of great assistance in locating a suspected appendix, for sometimes the iliac artery, which is on the median side of the muscle, has been taken for this organ. By adduction and abduction during partial flexion the prominence can be felt to move somewhat from side to side and, as it were, thus to roll the organ beneath the fingers.

Changes in Treatment of Hip-Disease.—Some 20 years ago a monograph on "Hip-disease in Childhood" was written by G. A. Wright (Practitioner, July, 1902), and he now shows that the changes in the line of treatment of this condition have been improvements in the general management of wounds rather than alterations in the principles which underlie the treatment of joint disease. There were then as now advocates and opponents of excision. The supporters of the operative treatment founded their views on the principle of removing a tuberculous focus, getting rid of dead bone, and so cutting short the disease. The chief arguments against excision were the dangers of wound infection and the alleged inferiority of stability and usefulness of the limb. The abolition of drainage and complete closure of the wound, so as to obtain primary union and get rid of the dangers of mixed infection, was the next great advance, and a further step was taken when in case of "abscess" the operation was divided into two stages. In the first the "abscess" was laid freely open and thoroughly cleaned out, or even excised, and when this had healed the diseased bone was removed if necessary. This led to fewer excisions, for when the "abscess" was healed it was frequently found that nature took care of the bone lesion. The use of iodoform in open operations and also as an injection has undoubtedly been helpful, and combined with extension it is employed in Holland almost to the exclusion of other methods. Rest, extension and fixation by splints or traction apparatus are still the methods in early cases and the better results obtained are probably due to the greater care taken and the fact that the cases are seen and treated earlier. Later follow extirpation of "abscesses," or in some cases aspiration and injection with iodoform, excision where the disease is progressive in spite of treatment, and amputation when a useless limb and pelvic disease render recovery hopeless. These constitute the main features of the present-day treatment.

Excision of Knee for Deformity and Tuberculous Disease in the Adult.—This radical operation is, of course, not to be recommended except where fixation and protection appliances are regarded as insufficient, but there are many cases, especially in adults where the ankylosis is not complete, and falls and sprains prove so annoying to the patients that they lose confidence in themselves. V. P. Gibney (N. Y. Med. Jour., July 26, 1902) reports three cases in which very good results were obtained from this operation, and it is probable that in all these cases the function would always have been far from satisfactory. Although there seemed to be no active trouble, in two of the cases small necrotic areas were found in the joint-surfaces, some of them burrowing deeply into the bone and undoubtedly preventing complete healing. Plaster of Paris casts and splints had been used in one case for nearly two years and there were only about five or six degrees of movement, but there was always danger of unexpected movement unless the uncomfortable splint was employed. An excision was finally done, giving the patient a firm and useful limb. An ankylosed knee is seldom as strong as a synostosed knee, and especially in adults the chronic inflammatory tissue or necrosed areas are liable to prevent accurate and complete ankylosis. It is recommended that the operation of excision be not delayed so long as has been usual in the past.

A Thoracobiliary Fistula.—An example of this rare condition is reported by Eschenhagen (Deut. med. Woch., July 24, 1902). The patient was subject to a cholelithiasis which suddenly became complicated by a cholecystitis and cholangitis. A circumscribed peritonitis resulted, with numerous adhesions, and the liver became the seat of multiple abscesses. One of these ruptured into the right lung, and when it had caused a circumscribed gangrene the pus was discharged through a bronchus. Healing gradually took place in the abscess cavity, and a fistulous communication was established between the former and a bronchus, so that the expectoration of pure bile became constant. Two months later death resulted from tubercular peritonitis.

Hand Disinfection.—The question of hand disinfection is discussed by C. Lauenstein (Münch. med. Woch., July 29, 1902), who, while he realizes the inefficiency of the usual procedures, has many words of praise for the Ahlfeld hot-water-alcohol method. He had occasion to operate a severe phlegmon, during which he punctured his finger. Several hours later an intestinal obstruction was reduced and it was necessary to manipulate the intestine considerably. This case made an uneventful recovery, yet the operator developed a severe phlegmon on the injured finger from the germs of the first operation, which, however, could not have remained in the superficial layers of the skin after the thorough disinfection that was practised. This was a slight modification of the original Ahlfeld method, in that the brush was used only toward the end, when the water no longer becomes dirty.

Ligation of the Lingual Artery.—The importance of this blood-vessel in all operations of any extent within the mouth renders its ligation a preliminary step of great importance. The old site of approaching the artery through the inframaxillary triangle is time-honored and cannot be disregarded. However, there are certain cases where in order to avoid a scar the vessel should be reached through the mouth if possible. Such cases would be those in which the tongue is only slightly diseased and consequently may be freely manipulated within the mouth. C. W. Cathcart (Annals of Surgery, July, 1902) gives the following method of accomplishing this desirable point. The method to which he draws attention is based on the fact that the hyoglossus muscle, although attached to the posterior third of the tongue, can be reached from the mouth when the tongue is drawn far out and the mucous membrane has been divided between it and the jaw. The operation is performed as follows: The jaws are opened wide; the tongue drawn forward with a stout silk suture in each half; the mucous membrane divided along the middle line of the dorsum, behind the growth, and between the tongue and the jaw; the tongue split; and the fibers of the geniohyoglossus divided close to the symphysis with scissors, so that the diseased half of the tongue can be drawn well out of the mouth. After this, with a few vertical strokes of a director or other blunt instrument, the anterior edge of the hyoglossus muscle is defined. The director is then insinuated beneath the muscle, the tissue being separated with the point before the instrument is pushed on. The muscle is next carefully cut through on the director for about two-thirds of its extent, and the fibers retracting leave the artery at the bottom of the wound covered only by a little connective tissue. With the point of an aneurism-needle or director the vessel can then be easily defined as a bluish cord, and traced downward and backward. An aneurism-needle should then be passed under it, and the vessel tied before it is cut. Some may prefer to seize it with forceps and cut before tying it, but the previous ligature is easier. After the artery has been ligatured and divided, a few snips should be made with the scissors radiating out from the ligatured artery into the substance of the tongue. This lessens the chance of cutting the artery again in the later stages of the operation. All that now remains to be done is to complete the operation, cutting wide of the disease. The advantages of this method are ease and certainty in securing the lingual artery; diminished bleeding from small vessels; greater certainty in cutting wide of the disease, along with an intact condition of the tissues of the neck for subsequent removal of the submaxillary and lymphatic glands. In two recent cases of epithelioma of the tongue he found this method of securing the lingual artery work admirably. On carrying the procedure out in the dissecting room, he found that one can reach in this way the same part of the artery that is tied in the usual operation for a preliminary ligature in the submaxillary triangle.

Hepatopexy.—The operative cure for displacements of the liver are still more theoretical than practical, for recourse to operation has been had in but few cases. So says A. LAMBOTTE (Gaz. de Gynéc., July 1, 1902). The wearing of a binder often affords relief from the painful symptoms, and again may be the cause of a great deal of the trouble. The indications for operation in movable liver are still very obscure. Einhorn discountenances operation on the pretext that presence of the edge of the liver below the costal margin is not a manifestation of enteroptosis, and that surgical intervention does not remove the cause of the evil. There are cases where the binder does not give any relief to the disagreeable symptoms and where operation gives a perfect result. Failure to relieve the trouble or recurrence must be put down to faulty technic on the part of the operator. The three operations which received commendation in hepatosis were: (1) The suturing of the liver to the abdominal wall (properly called hepatopexy); (2) the subhepatic peritoneoplastic operation of Péan; (3) the laparoplastic operation of Depage. The author thinks that the only practical operation is the first one here mentioned and his experience with it has given perfect results.

Spontaneous Reduction of Acute Intussusception.—The diagnosis of this affection is always one of great difficulty because the condition occurs so frequently in children who cannot aid the physician by giving a good history. Even after the condition has been recognized, treatment is a question of extreme difficulty because the patient is usually so much reduced in strength. Spontaneous reduction of intussusception may be regarded as one of the rare clinical experiences. W. G. NASH (Lancet, July 29, 1902) gives the following facts of such a case: A male child, aged eleven months, between 12 and 1 o'clock midday on June 4 was seized with abdominal pain which caused screaming and great collapse. Vomiting occurred. He saw the child shortly before 3 o'clock when he found him pale and suffering from extreme collapse. On examining the abdomen a swelling could be seen passing from the region of the cecum obliquely upwards towards the epigastrium. On palpation a firm sausage-shaped tumor three or four inches in length could be felt. He concluded that an intussusception was present and made preparations for immediate operation. Hot bottles were applied to the extremities and hot flannels to the abdomen. He saw the child again in consultation at 4 o'clock and found him looking much better, having had a sleep. The lump could still be seen and felt, but was evidently smaller, and during their manipulations it suddenly and entirely disappeared. There was a history of looseness of the bowels on the previous evening. This appears to be a case in which spontaneous reduction of an intussusception really occurred. He was perfectly certain that an intussusception was present. The symptoms of severe shock were very marked and the presence of a very distinct elongated tumor was very easy to demonstrate to the relatives. No doubt the diarrhea of the previous night led up to the occurrence of the condition. The reasons why the intussusception was reduced appear to him to be three: (1) The manipulations necessary to form a diagnosis acting on a very recent intussusception; (2) the occurrence of faintness and vomiting leading to relaxation of muscular spasm; and (3) the application of heat to the abdomen acting in the same way.

Injuries of Nerves.—The clinical and medicolegal importance of this subject is well known and deserves careful attention from every practitioner of medicine. A. A. BOWLBY (Lancet, July 17 and 26, 1902) has an instructive paper dealing with this subject. So far as the treatment, which is of greatest importance, is concerned he makes the following statements: In the first place, nerves do mend in many respects as well as do other tissues of the body, and after a preliminary degeneration regenerative changes ensue in the peripheral end and are more complete in the sensory than in the motor fibers. On the other hand, one must not expect a too complete restoration of muscular power or of sensation, especially in the case of nerves supplying the hand. So far as the treatment of these wounds is concerned primary suture is the thing to aim at in all cases, and when a primary suture has been undertaken and successfully carried out and the wound has healed by first intention, in those circumstances one may rest assured that the nerve will unite, and it will unite all the more quickly if one takes care to keep the part in use, to keep it warm, to have it massaged, and if necessary to have it galvanized. It will surely unite in time, and the more quickly if the patient be young. Patients should be dissuaded, therefore, from being in a hurry to have other operations done if primary suture has been satisfactorily performed and the wound has healed by first intention. Secondary suture ought to be undertaken in every case where in a punctured wound a nerve appears to have been either completely divided or so nearly divided as to make it probable that it has been materially injured and may perhaps be really divided. In undertaking the operation of secondary suture the patient should not be encouraged too much if the interval between the injury and the secondary suture is a very long one. His experience is that up to two years one may reasonably expect in the young a good restoration of sensation and muscular power. But after an interval of four years no one has ever yet recorded a case in which there has been complete restoration of motor power, although there have been cases of restoration of sensation. When one undertakes these operations for secondary suture, therefore, it should be remembered that to some extent the diagnosis is to be guarded, and in giving it one must be guided by the length of time which has elapsed and to some extent by the age of the patient and the particular nerve which is injured. One may give a much better diagnosis, from the patient's point of view, in cases of wounds of nerves other than those which supply the small muscles of the hand with power and the fingers with sensation.

Appendicitis Toxemia.—Reporting two cases of appendicitis with general toxemia, acute degeneration of the kidney and death, M. Dieulafoy (Bul. de l'Academie de Médicine, July 14, 1902) gives the opinion that, in view of the many complications of appendicitis, to delay operation is to expose the patient to the chance of death. Peritonitis, general or local, distant abscesses, generally fatal liver involvement, pleurisy, empyema, purulent pericarditis and cerebral abscess are some of the dangerous lesions resulting from delayed operation. The "interval" operation is easy and practically free from mortality, but it is certain that during the waiting for the interval enough patients succumb from the acute attack or from a complication to make delay unjustifiable. Undoubtedly the cause of death is often a subacute toxemia which manifests itself in the stomach, liver and kidneys.

True Foreign Body in the Appendix.—The presence of true foreign body in the sense of its introduction from without and not of formation within the organism is really far more rare in the appendix than many authorities grant. J. D. Malcolm (Lancet, July 5, 1902) gives the following brief notes of a case in which a black pin, surrounded by fecal concretions, was found. The patient, a female child, whose illness lasted for two days, was not attended by any medical man, but a physician was sent for after her death. He was told that the girl was six years old and had shown no evidence of abdominal mischief before October 7, 1901. On that day she was at school and quite well. In the evening she was seized with violent pain in the abdomen, vomiting, and diarrhea. The next day, and off and on for a few days, she was better, but on the ninth day she died suddenly. The body was opened by order of the coroner. The small intestine and mesentery were found to be glued together by inflammatory adhesions so as to shut off the pelvic cavity. The appendix was in a gangrenous state beneath the adherent coils and close to the peritoneum covering the sacrum. Liquid feces had exuded and had filled the pelvic cavity. On incising the appendix the concretion was exposed and it was noted that the point of the pin was directed towards the tip of the appendix. Before the drawing was made the concretion had shrunk so as to expose more of the head and point of the pin than was shown in the fresh moist state. The case is interesting as it shows that the most serious mischief connected with the vermiform appendix may excite no real anxiety in the minds of a patient's friends. Prompt interference by operation was the only treatment that offered any chance of saving the patient's life, but if a medical man had been consulted immediately after the onset of symptoms it is obvious that examination of the parts in a child aged six years would have been difficult and unsatisfactory, and the surgeon, however great his experience, might have failed to grasp the full gravity of the case in time to perform a successful operation.

Inequality of the Pupils in Thoracic Aneurism.—This reflex symptom has been stated in text-books and articles as one of the earliest and most reliable symptoms of aneurism within the thorax, especially in the arch of the aorta. C. B. Wall and E. W. A. Walker (Lancet, July 12, 1902) presented the following summary and conclusions in this matter: A.—The explanation which ascribes the anisocoria at times occurring in cases of thoracic aneurism to interference with the sympathetic is unsatisfactory. 1. On anatomical grounds: (a) Because in the majority of cases there is no evidence of implication of that portion of the sympathetic nerve-trunk containing pupil dilator fibers; (b) because it is not established that sympathetic filaments supply to sac-wall of an aneurism. 2. On physiological grounds: (a) Because the explanation supposes that the same conditions may produce sometimes paralysis of the nerve; (b) because cases are rare in which there is any evidence apart from the pupillary change that the sympathetic is involved; (c) because the pupillary changes are not those met with in cases where the sympathetic is involved. B.—1. Alterations in vascular conditions may be associated with alterations in the size of the pupils. (a) High arterial tension is associated with small pupils; (b) low arterial tension is associated with large pupils. 2. The physical explanation of this phenomenon is probably to be found in the spiral structure of the vessels of the iris. C.—Local inequalities of blood-pressure may therefore be associated with inequalities of the pupils. (a) Clinical evidence: 1. Enlargement of pupils is frequently associated with diminution of the temporal and radial pulses on the same side of the body. 2. Obstruction of the carotid artery on one side of the neck is associated with enlargement of the pupil upon the same side. (b) Experimental evidence: 1. Obstruction of the carotid in rabbits is associated with enlargement of the pupils on both sides owing to the freedom of circulation at the base of the brain. 2. Injection of water into the carotid artery of a dead rabbit causes narrowing of the pupil upon the same side. 3. Digital compression of the carotid artery in the human subject is associated with enlargement of the pupil upon the same side. They therefore conclude that inequality of the pupils associated with thoracic aneurism is usually due to inequality of blood-pressure in the ophthalmic arteries resulting from the abdominal vascular conditions.

Iliac Dulness in Appendicitis.—In calling attention to the necessity of an early diagnosis in appendical inflammations, Riedel (Berlin. klin. Woch., Aug. 4, 1902) lays stress on the doubtful value of a classical sign, namely, dulness in the right iliac region, as a factor in determining operation. The presence of this sign can usually be considered a positive indication, but its absence cannot alone be taken as a reason for delay. He shows that it cannot occur unless the appendix is encompassed by adhesions. When perforation takes place at a point remote from the iliac fossa it cannot be demonstrated. A previous dulness will moreover disappear when air enters the abscess through the appendical canal.

Diagnosis of Hip-Disease.—This term has been used by general agreement to designate a tuberculous ostitis of the hip-joint. Statistics of various clinics seem to show that the diagnosis of hip-disease in children is the overwhelmingly prevailing one where the hip-joint is concerned. Such figures suggest two possibilities: (1) Either tuberculous ostitis of the hip is practically the only affection of the hip that occurs with any frequency, or (2) other affections of the hip-joint are confounded with tuberculous ostitis and mistaken for it. A contribution to the question has been made by R. W. Lovett (Bost. Med. and Surg. Jour., Aug. 14, 1902), who has taken for analysis 95 cases coming under observation during a period of two years. The inquiry made four years later was for the purpose of ascertaining whether they had pursued a course characteristic of tuberculous disease or not. A provisional classification of the results is as follows: Old cases, rejected, seven; insufficient data for diagnosis, eight; recovery after a transitory affection, 21; some serious affection not obviously tuberculous, 14; tuberculous hip-disease, 45. After a careful consideration of the symptoms and the subsequent history, the author concludes that the signs ordinarily taken to be diagnostic of tuberculous hip-disease are not characteristic of it, but are also present in cases which rapidly recover, and in other forms of chronic joint-inflammation than the tuberculous. He thinks that better diagnostic standards must be sought, more accurate than spasm, atrophy, night-cries, or joint-sensitiveness. Of all the signs given, "thickening of the trochanter" proved most reliable. The X-ray is of value in early diagnosis.

Fat-Necrosis.—It has usually been considered that this process is closely related to some pathological condition in the pancreas, and most autopsies seem to have confirmed this view. A new aspect to the question is given by the report of a case observed by P. Wulff (Berlin. klin. Woch., Aug. 4, 1902). It deals with an alcoholic patient who, shortly after recovery from a severe pneumonia, was taken ill with what appeared to be appendicitis and subsequent abscess formation. The operation revealed a large cavity due to a fat-necrosis, the latter process also extending to other parts of the abdomen. Death came on in a few days, hastened no doubt by the severe hemorrhages into the cavity. Autopsy showed the appendix to be perfectly normal. There was present, however, a typical necrotic process involving all the abdominal fatty tissue, with its focus in the region of the cecum. The pancreas was found entirely normal. The author believes that fat-necrosis in many cases is a disease sui generis, which may prove fatal without involving other organs. The pancreatic involvement is often probably a secondary process.

GENITO-URINARY AND SKIN DISEASES.

Cystopyelitis and Methylene Blue.—The great popularity and evident success which have attended the employment of methylene blue for the cure of inflammations of the genito-urinary tract are well known. Adverse reports are comparatively rare, but should receive due note. T. H. Van de Velde (C'blatt f. Gynäk., 1902, No. 23) offers the following unfavorable observations in this matter which appear to refute many of the former claims for this treatment. Upon the skin methylene blue is faintly antiseptic and not at all irritating. Upon the mucosæ, however, throughout the body it is often very exciting and often leads to distinct and somewhat prolonged reaction. For these reasons Carl von Braunschweig has recently counselled against its employment in diseases of the eye. Mild and severe reactions in the stomach have been seen frequently enough, both after continued and incidental administration. Similarly diarrheas have been seen by its irritation of the intestinal tract. The kidneys are for reasons not fully understood the sole avenue for the elimination of this chemical and its derivatives. Therefore by analogy one must expect at times irritation of the mucosæ of the genito-urinary organs during the process of its evacuation from the body. Van de Velde reports cases of mild bladder reaction, shown by tenesmus, frequency and pain on urination in patients whose renal sufficiency he was testing by the internal exhibition of this drug. It seems as if the muscosa of the bladder were the most easily affected. In patients already suffering from inflammation of the bladder he has noted occasionally accentuation of the symptoms. He subjected the drug used to tests spectroscopically for its purity and found it without adulteration. Zinc salts are the most common impurities and naturally cause much irritation. Aside from their presence, the pure drug may be the origin of trouble in some individuals, according to his experience. Therefore he concludes that its employment is not without occasional difficulty.

Urticaria Pigmentosa.—This rather uncommon disease belongs usually to childhood and disappears spontaneously about puberty. H. Lawrence (Intercol. Med. Journ., May 20, 1902) reports a very marked case and since the disease is most active during the time when we suppose the thymus gland to be functionating, he is trying the effect of administration of that gland upon this case. So far it seems to have aggravated the condition somewhat and there seems to be a distinct variation in the severity of the symptoms corresponding to the use of this remedy. It is thought that the disease may be due to a hypersecretion from this gland.

Pelade and Phosphorus.—Dissatisfied with the results obtained by the usual methods of treating alopecia and convinced that the affection has commonly a purely nervous origin. V. A. Bialobjesky (La. Sem. Méd., 1902, No. 24) conceived the idea of combating it with phosphorus. In a short time he became convinced that this is the correct treatment because in so many instances new hair began to grow in patients who did not react at all favorably to the ordinary medications. One child twelve years old in his hands for eight months under arsenic by mouth and hypodermatically without results promptly began to develop new hair under phosphorus. In the third month of the latter method, the new growth reached four cm. in length. He habitually combines the phosphorus with arsenic and employs the following formula by choice:

℞ Phosphorus ....0.06 gram
Dissolve in olive oil and then add:
Arsenous Acid ....0.01 gram
Mix and divide into 120 pills.
Mark: 1 to 4 pills daily.

This medication is naturally chiefly successful against recent cases of alopecia. In these at the end of the first month, as a rule no more new areas of it appear and the whole course of treatment ends in three or four months. It is well to interrupt the treatment by a week of rest from the medicine during such a four-month term.

Roentgen Dermatitis.—The true Roentgen rays and not the electrical or chemical ones which also emanate from the tubes, are held responsible by D. Wiesner (Münch. med. Woch., June 24, 1902), for the dermatitis so often seen. This may be acute or chronic and in the patient observed by the author, there was an eruption on the hands and arms, similar to chronic dermatitis, which spread to the face and trunk with suppuration in many localities. The duration was several months. The process is best explained on the hypothesis of a trophoneurosis; the negative ions issuing from the tube penetrate the skin and create a chemical change in the molecule in or about the nerve-endings, which by way of reflex is followed by trophic disturbances in the skin. This accounts for the concomitant falling out of the hair, the long period of incubation and the slight benefit from therapeutic procedures.

Status of the Bottini Operation.—An analysis of 888 operations by forty-eight operators for the relief of obstructive hypertrophy of the prostate, has been made by O. Horwitz (Penn. Med. Journ. June, 1902). The summary of results is as follows: Cases improved or cured 84.3 per cent.; unimproved, 10 per cent.; deaths, 5.7 per cent. These cases were probably not selected as particularly suitable for this method, and the results point to the value of the Bottini operation as a safe procedure when compared with others. The author's conclusions from his observations are: That there is less fear on the part of the patient to submit to this operation than to any other. The principal advantages are the short time required for its performance, the slight amount of hemorrhage and shock, rapid convalescence and low mortality. Cures result in a large majority of cases and marked improvement in cases where other treatment is unwarranted. Failures are due to complications, especially an incurable cystitis. The operation is contra-indicated when a valve-like formation exists or where there is greatly increased overgrowth of the three lobes, associated with tumor formation. It is a good palliative measure in old cases with cystitis and constipation. Pyelitis when present adds to the danger but is not always a contra-indication. The operation may be employed as a safe and satisfactory means of causing a supra-pubic fistula to close, which frequently follows a supra-pubic cystotomy when the prostate gland is hypertrophied. It is especially indicated in the beginning of obstructive symptoms and may be regarded as prophylactic.

PEDIATRICS.

Diphtheria and Peroxid of Hydrogen.—About three years ago E. Riegler of the Faculty of Medicine at Jassy recommended the use of peroxide of hydrogen and iodic acid insufflated upon diphtheritic throats. Recently N. Novikov (La. Sem. Méd., 1902, No. 26) has been making use of the peroxide of hydrogen without any other means of treatment, even without serumtherapy. His results are that the number of cures is just as great as with the administration of the antidiphtheritic serum. Although the detachment of the false membrane is not quite as prompt with the peroxide of hydrogen alone, there is never any depression with it as often occurs with the blood serum alone. The local germicidal activity of this drug is so potent that the absorption depression of the false membrane is limited by it as much as by the serum; otherwise the record of cures would not be so good. His method of employing the drug is to make a 3 per cent. mixture of the drug in water and direct the patient to gargle the throat liberally with it night and day at short intervals. If the patient is too young to carry out these directions properly he resorts to internal administration, making up a mixture as follows: Peroxide of hydrogen 5 to 7 parts, simple syrup 15 parts, distilled water 85 parts. The dose is a coffee- or dessert-spoonful every one or two hours. In order to promote the casting off of the false membrane he practises washings of the throat once or twice a day with the 3 per cent. solution. They are not painful and usually attain the purpose well. Novikov has found the same methods valuable in nondiphtheritic angina, and all forms of stomatitis, especially mercurial.

Pertussis and Iodide of Ethyl.—The similarity between whooping cough and attacks of asthma led Bardet and Amat (La Sem. Méd., 1902, No. 26) to treat the former on the same plan as the latter in two cases of rebellious spasm, by employing iodide of ethyl by inhalation. They took a wide-mouth bottle into which they poured a few grams of the drug and then compelled the child to inhale from it. The result was a decrease in the number and activity of the spasms and a beneficent increase in the bronchial secretions. The therapeutic effect was very marked at first though it tended to decrease with use, but at the same time the seizures numbered six instead of forty a day and became much less severe.

Scarlatina and Turpentine.—A few years ago two Spanish physicians, I. Pujador y Faura and J. Viura y Carreras of Barcelona, reported an intense case of scarlatina which they treated with success by hypodermatic injections of essence of turpentine. Acting upon this suggestive case A. Tobeitz of Gratz (La. Sem. Méd., 1902, No. 27) employed turpentine in the treatment of all the hospital cases of scarlet fever coming under his care at the clinic there. He found the hypodermatic method of administration exceedingly painful and prone to cause abscesses and therefore abandoned it in favor of the mouth-administration. The total daily dose which he used was fifteen to twenty drops in a single, or in divided administration, best in milk as a vehicle. He is still so well satisfied with this drug that he is still employing it and has already done so in about one hundred cases. Its special efficacy is against the renal complications, which it appears in many patients to prevent and in others to modify or check, so that in his present series of cases albuminuria is of very rare occurrence. It is of interest to note that essence of turpentine was prescribed for scarlet fever as long ago as 1868 and results reported by Helsingfors of Pippingsköld.

EYE, EAR, NOSE AND THROAT.

Immunization Treatment of Hay-fever.—A series of trials of this method have been made by E. F. Ingalls (Journ. Am. Med. Assoc., June 28, 1902). He used fluid extracts of Ambrosia artemesiefolia and Solidago, giving two minims of the mixture in capsules four times daily, a.c., followed by glass of water. The dosage was increased two minims daily until twenty minims were taken q. i. d. This was given for two weeks, and continued on return of symptoms. Local applications of adrenalin were also given for immediate relief. In eighteen cases treated, a favorable result was reported in twelve cases, or 67 per cent. Thirteen believed they were benefited by the spray combined with the extract. Sixty per cent. were subject to asthma during the attack and one-half of this number reported relief from these symptoms. In two cases gastric disturbances followed and in one, menorrhagia. The author believes that he will get more complete results with a trial of more reliable and standardized preparations than those at present made.

Dry Method of Treatment for Otitis Media.—The mucous membrane of the tympanic cavity is naturally very resistant to micro-organisms and since dryness is as fatal to most germs as strong chemical antiseptics, F. W. Davis (N. Y. Med Journ., July 12, 1902) has been employing the dry method in treating both acute and chronic middle ear troubles. It, however, requires more skill than syringing and cannot be done properly even by many physicians. The discharge should first be wiped away with a cotton-carrier exposing the drum, perforation or the tympanic cavity if the drum is destroyed. In the latter case the cavity should be thoroughly cleansed of secretion. A narrow strip of dry gauze should then be introduced through a speculum and the canal loosely packed to the meatus. This should remain until thoroughly soaked with the discharge whether it takes one or twenty-four hours. It is then removed and replaced by a piece of dry cotton which remains till the next packing which is done once or twice daily according to the amount of the discharge. It is believed that cures are more rapidly obtained in this than any other way and it is, furthermore, very agreeable to the patient.

Bucco-Nasal Respiration.—That normal respiration is nasal is an established fact; that in abnormal conditions buccal respiration may replace, though imperfectly, the nasal, is repeatedly observed; but the possibility of respiration occurring simultaneously, through mouth and nose has been the subject of some discussion. H. Lavrand (Jour. d. Sci. Méd. de Lille, June 21, 1902, has, apparently, proven that bucco-nasal respiration is possible, through observation of the phenomenon in a child sleeping with the mouth partly opened; two mirrors placed respectively under the nostrils and in front of the mouth demonstrating, by clouding of the surface, simultaneous respiration through both organs; and like experiments with subjects in the waking state showed that inspiration and expiration take place simultaneously, in a certain number of cases, through the mouth and nose.

Otitis Media Complicating Measles.—Deaf-mutism only too often follows measles, usually because the complicating otitis media is not appreciated soon enough to be properly treated. H. Jarecky (Med. Rec., July 19, 1902) says that in infants and children who cannot direct attention to the spot whence the trouble arises, any increase in temperature, fretfulness, restlessness, burying the head in the pillow, or putting the hand to the ear should call attention to that organ. In examining an adult the auricle should be pulled upward, backward and outward to straighten the canal. In children it is nearly straight and the drum is easily inspected, but in infants the lobe should be pulled downward and outward, and one should look upward. One should not be deceived if the membrane is of a dead white color, for this is sometimes due to necrosis of the superficial epithelium, which can be easily removed by a cotton-tipped probe, when the reddened membrane can be seen. Local abstraction of blood is often found beneficial in adults. Occasionally phenacetin or acetanilid in divided doses may relieve the pain, but morphine is seldom justifiable. Glycerin, with five to ten per cent. of carbolic acid, applied on a cotton pledget to the drum membrane and allowed to remain six to 24 hours, often cures the pain. This can be repeated if necessary. Dry heat is very effective, but moist heat should not be employed on account of the danger of edema. If the attack is not aborted, the hyperemia increases and the membrane loses its luster, causing a general swelling and bulging. Paracentesis should then be done before perforation occurs. Local anesthesia is seldom sufficient, but nitrous oxide gas usually suffices admirably. A generous incision should be made with a very sharp knife in the lower posterior quadrant. The canal should then be frequently irrigated with sterile water, bichloride 1 to 5,000, or boric acid. Another method is to dry the canal thoroughly once or twice daily and pack with gauze.

Hints on Chronic Nasopharyngeal Catarrh.—The prevalence of catarrhal conditions of the nose and throat in this immediate vicinity has been thought by many to be due to the great amount of moisture in the atmosphere along the seacoast. W. Freudenthal (Med. Rec., August 9, 1902) believes that, on the contrary, an important efficient cause can be found in the lack of moisture. He urges that those who are affected are not accustomed to outdoor work but are housed up in some factory, store or home where the moisture of the air is largely eliminated by the use of artificial heat, especially the dry heat of a furnace. He urges more outdoor life, less fear in exposing ourselves to inclement weather, and more time spent in inhaling moist atmosphere. He advises the inhalation of steam when the trouble is present, and this may be medicated with turpentine, eucalyptus or other harmless and probably useless drugs. The steam is the essential factor. In winter he believes patients will get more relief if they use hot water than cold baths. The room should be filled with steam from the hot water and inhaled for several minutes. A cold douche later will prevent "taking cold." In the treatment of atrophic catarrh he recommends the use of tampons saturated with a five to ten per cent. ichthyol solution worn in one nostril for two hours in the morning and in the other for two hours in the evening. He employs douches and sprays very seldom. Carbonic-acid gas has given him very good results by causing a hyperemic condition of the mucous membrane. Internal massage, as suggested by Braun and Laker, is especially beneficial and is applied by an electric vibrator which is made for the purpose. It is not difficult to apply, and the activity of the glands which may thus be induced is particularly gratifying. He has not found electrical treatment very beneficial.

Adrenalin in Epistaxis.—The efficacy of the suprarenal extract in nose and throat work is now very generally accepted as proven, but many have found that the cases of secondary hemorrhage following its use are much too common. J. P. Booth (South. Cal. Practitioner, July, 1902) reports an instance of very alarming epistaxis in which all ordinary methods of stopping the hemorrhage were tried without success, and the patient was reaching a dangerous condition when adrenalin in a strong solution was used with most happy results. There was no further bleeding either immediately or secondarily.

Phenol and Granular Conjunctivitis.—The frequent failures which follow the usual methods of treating granular conjunctivitis by the common topical methods are well known, no matter whether such procedures are mechanical or surgical, like curetting, bathing with sublimate, expression, ablation of the superior cul-de-sac, and other similar means. V. A. Niemlchenkov (La Sem. Méd., 1902, No. 22), convinced that these limitations of the treatment are due entirely to the localization of the morbid process within the deeper layers of the mucosa, and even at times within the submucosa, has had the idea of combating the disease by subconjunctival injections of a watery solution of carbolic acid, 5 per cent. strength. The interstitial injection of this solution has given him excellent results in certain local infections which were deep-seated. His manner of proceeding is as follows: After having turned out the lower lid, he passes the needle under the conjunctiva at the point most affected by the disease and as far as possible toward the external angle of the eye and near the free border of the lid. At this place he injects slowly a few drops from a syringe, taking great care to avoid tension of the tissues and to displace the needle as rapidly as this occurs. He then injects a few drops opposite the other angle of the lids and repeats the entire process in the upper lid. It is necessary to place these injections immediately beneath the conjunctiva and not to force the needle into the deeper structures. As a rule, they do not require any local anesthesia because the carbolic itself possesses, as is well known, this very effect. Sometimes, however, at the moment of injection the patients experience severe pain, which very shortly disappears. The indications are to begin with one injection at the point most affected and not to repeat the treatment, unless in the opposite eye, in less than from five to seven days. After the injection a dressing is applied in order to avoid an excess of inflammation. On the following day, however, the patient begins as a rule to open his eye, and the edema commonly disappears promptly. The epithelial layer of the conjunctiva remains absolutely intact and the reaction manifests itself commonly by slight infiltration and hyperemia of the mucous and submucous tissues. These reactional signs disappear always and completely within from 10 to 14 days. If carried out aseptically and with slight pressure, these injections do not cause suppuration or gangrene. He has not yet seen any symptoms of poisoning, although the quantity of carbolic used has been considerable after a number of injections. He has managed in this fashion 43 patients, and the majority of them were completely cured after one treatment; a few after two, and only exceptionally after three sittings. Between such repetitions he prefers to allow an interval of two weeks, but never less than five days.

Cocaine and Menthol for Coryza.—The headache and sense of obstruction within the nose which usually accompany coryza during the acute stage are the two symptoms with which the physician is concerned in order to afford immediate relief to the patient. It is often enough that sprays and douches are resorted to which embody a warm solution of cocaine, but the danger of the cocaine-habit in using this drug alone makes the physician hesitate to give it promiscuous employment. For this reason A. PUGAT of Vienna (La Sem. Méd., 1902, No. 22) has been using his mixture of cocaine and menthol with great satisfaction so far as the results upon the symptoms and the danger of drug-habit are concerned. He takes five parts each of the hydrochlorate of cocaine and of menthol in 100 parts of liquid vaseline. The effect is relief of congestion to a marked degree and best when the spray is repeated every three hours. He finds that this effect is more marked than when the cocaine alone is used.

Chancre of the Tonsils.—The literature of syphilology contains, all told, records of about 10,000 cases of extra-genital chancres. Of these the majority are said by Kyle to occur in the throat, although Bulkley assigns this site only the sixth position in the order of frequency. W. CHEATHAM of Louisville (Medicine, July, 1902), has seen seven cases within a year and a half, most of which had previously been unrecognized. This leads him to the conclusion that many cases of chancre of the tonsil are probably overlooked, especially as they lack the characters which distinguish the lesion on other parts of the body. He holds that persistent sore throat, with inflammation or lesion of the tonsil, and with indolent, non-suppurative buboes situated at the angle of the jaw, should always arouse suspicion of syphilis. The occurrence of the secondary skin eruption is of less importance in these cases, as it often fails to appear. As regards the tonsil itself, the appearances are extremely deceptive. It is increased in size, and usually its entire structure is involved. The induration of the base can not generally be made out, owing to the loose structure of the underlying tissue. There is frequently no superficial loss of tissue, but often the surface is covered with mucus or a pseudomembrane. Therefore the diagnosis hinges on the obstinacy of the tonsillar inflammation, together with the occurrence of the typical submaxillary glands. A history of exposure is hardly even obtainable. Diagnosis is often confirmed, ex juvantibus, by the success of antiluetic measures.

Corneal Ulcers and Pure Phenol.—The usual method of treatment applied to ulcer of the cornea of progressive and destructive type is eradication by the galvano- or electrocautery or a staphyloma-needle heated to redness. Unfortunately, although these measures cure the ulcer because they destroy it, they also annihilate the subjacent tissue to such a degree that leucomata develop and persist with much interference with vision. With the purposes of furnishing a radical cure and of obviating these difficulties S. THEOBALD (La Sem. Méd., 1902, No. 25) has been using pure carbolic acid with satisfactory results in suitable cases. His method of application is the following: The eye is cocainized and cleansed, and then a very small pledget of absorbent cotton is wound upon an ordinary toothpick, soaked in the pure carbolic acid and applied to the ulcer with a scraping movement. Care must be taken not to permit the acid to extend beyond the ulcer, and it must be washed off with boric acid or normal salt solution after a few moments' action. Theobald does not intend this treatment for all ulcers of the cornea, but for such as resist the other means, such as ointment of ammoniated mercury.

HYGIENE.

Transportation of Mosquitos.—In a preliminary report E. SOUCHON (Med. Rec. July 5, 1902), shows that mosquitos are sometimes found in the holds of vessels even after a journey of five and a half days. In a number of instances most thorough searches failed to discover any mosquitos and it has been thought that perhaps there was no danger in transporting disease from one port to another by means of mosquitos infected by malaria or yellow fever organisms. Medical inspectors have now been instructed to examine carefully each vessel on different days after leaving port and it is hoped that more definite knowledge will soon be gained in regard to the life history of mosquitos on shipboard.

OBSTETRICS AND GYNECOLOGY.

Antipyrine and Puerperal Septicemia.—The value of antipyrine as a febrifuge in ordinary conditions is well known but the drug has not found a wide field of usefulness in this country for the fever of puerperal septicemia. But H. CURSCHMANN and P. ZWEIFEL (La Sem. Méd., 1902, No. 25) recommend it very highly in a daily amount of 2 to 4 grams divided into doses of 0.50 grams each. It not only reduces the fever, but also quiets the circulatory and respiratory excitement and seems to combat the septic process directly. They have seen severe cases do exceedingly well under it, especially when associated with supporting and stimulating measures like alcohol, strychnine, camphor, etc. The appearance of the antipyrin rash is very rare and according to Curschmann does not indicate cessation of the drug. Tolerance for the drug in this disease is, according to these observers, marked even when asthenia is already present.

Prophylaxis of Puerperal Mastitis.—In order to prevent the onset of complications upon the part of the breasts during the puerperium F. AHLFELD (La Sem. Méd., 1902, No. 25) adopts the following simple measures. The patient washes the breast, areola and nipple every two days very carefully, dries them thoroughly and applies 10 per cent. solution of tannic acid in 96 per cent. alcohol. This astringent and hardening lotion is allowed to evaporate thoroughly before the clothes are put on. He has followed this treatment for two years now and succeeeded in preventing breast complications in all his obstetrical cases.

Hystero-Kataphraxis.—The meaning of this new word is the inclusion of any viscus, for example the uterus, within supporting metal sutures as a medium of replacement. A. CATTERINO of Camerino, Italy (C'blatt f. Gynæk., 1902, No. 26), has devised the following operation, which he denominates by this term as a substitute for ventrosuspension or ventrofixation or as a more secure type of these operations. The steps of it after the usual method of opening the abdomen, exposing and bringing the uterus into the wound a gold- or pure-silver-wire suture is passed through all the layers of the abdominal wall except the skin, thence through the broad ligament close to the uterus opposite the juncture of its lowest and middle third and from this point in reversed order through the broad ligament and parieties on the opposite side. A second suture is passed in the same manner above this around the organ just below the insertions of the round ligaments. Either before or after the abdominal layers are apposed the wires are twisted together and then the skin is sutured. Instead of two sutures, only the upper may be used. Again both may be passed like Halstead's intestinal mattress suture, namely after passing the lower suture, instead of cutting the wire, it is carried along between the aponeurosis and the skin of the side of its emergence and then entered as before on that same side at the level for the upper sling. In this manner on one side both free ends will be twisted together, while on the opposite the continuous line of wire will be seen passing from above downward. Catterino states that its results are good as a means of support but does not discuss its attrition upon the structures concerned.

Dysmenorrhea in Young Girls.—Gynecologists distinguish in their classifications an idiopathic and a symptomatic variety of this disorder. Where there is no disease or disorder of the uterus or the adnexa, the dysmenorrhea constitutes the whole trouble. With certain individuals the dysmenorrhea is transitory and lasts but a few years, or disappears or amends itself after the first two or three years of menstruation, or else disappears after the first coitus. With others this is not true; it neither diminishes nor intensifies the disorder, but pregnancy and the subsequent delivery produce its abatement. In these forms there is no lesion or malformation, since function of the organ produces a cure. It is not always the thin, poorly developed young woman in whom one finds this condition, but also in the large well-developed young women and girls; in fact, even in those inclined to obesity. Examination of the internal genitalia reveals most often the real cause of this so-called idiopathic dysmenorrhea. The uterus is of the infantile type, small cervix with partially occluded os. Often the ovaries are smaller than usual, and indeed infantile. Slight flexion of the uterus on the cervix is the generally admitted cause of this disorder, but this slight mechanical obstruction does not correspond to the generality of the facts. For though this would explain the cause of the pain before the flow, it does not explain satisfactorily those cases where the dysmenorrhea is intermittent, or where the pain is present after the establishment of the flux. Again, the strength of the argument of mechanical obstruction is lost when we recognize that age very often does away with the dysmenorrhea, though the malposition still remains. Therefore we are compelled to believe that the cause is not to be found in one single condition, but that there is a multiplicity of factors concerned; that there may be general tardiness of genital development, superimposed on a general nervous excitation manifesting itself in this manner; that it is simply a referred manifestation of causes foreign to the locality. In view of the fact that the author thinks that many of the cases are produced by the infantile ovary, he gives them ovarian extract, and also static electricity to tone up their nervous systems. G. BOUILLY (La Gynéc., June, 1902).

Advantages of the Knee-chest Position.—A method was advocated about a year ago by H. A. KELLY for opening and exposing the female bladder, which consists in placing the patient in the knee-breast posture and then letting air into the bladder through a catheter or speculum. An artificial anemia of the bladder is induced by this posture and the facility of exposure has extended the field of vesical surgery. The author (Jour. Am. Med. Assoc., August 9, 1902) still further extends the field by reporting a case in which a large ureteral calculus was removed through this incision in the vesicovaginal septum after dilating the bladder with air. The calculus was near the ureteral opening, but could not be extracted through the urethra, although distinctly seen on endoscopic examination.

THERAPEUTICS.

Intraspinal Injections of Cocaine.—The mechanism of the action of intraspinal injection of cocaine has been the subject of experimental studies by VALENTI (Archiv. di Farm. Sper., June, 1902). The question has been raised whether anesthesia is due to direct influence of the alkaloid upon the nervous elements or whether the introduction into the spinal canal of a hetrogeneous fluid may not be the principal or secondary factor in the production of anesthesia and post-operative nervous phenomena as well as increased temperature. Valenti, through injection into the spinal canal of a liquid in greater quantity than the cephalo-rachidian fluid previously extracted, has been able to exclude increased pressure and compression of the nervous elements through introduction of a hetrogeneous liquid, as a factor in the production of anesthesia. The conclusion is drawn that the anesthetic action of endorachidian injections is due solely to the cocaine, which acts upon the orgin of the spinal nerves, paralyzing their sensory fibers. The secondary or post-operative phenomena, analogous to those commonly observed in acute cocaine poisoning, are believed to depend upon the toxic action of the alkaloid, which, through tardy absorption by the arachnoid, passes slowly into the general circulation.

Toxicology of Exalgin.—Many cases of poisoning with exalgin are recorded in literature, and that small doses may occasionally be followed by untoward symptoms is again seen from the article of O. SEIFERT (Wien. klin. Rundsch, June 29, 1902). A patient suffering considerably from headache and insomnia received half a gram of the drug in the morning; during the afternoon she complained considerably of palpitation of the heart and a feeling of oppression. After subsequent doses of the same size the distress became even more marked and was coupled with formication, vertigo, spots before the eyes, tinnitus, dilatation of the pupils, increased pulse rate and a pronounced cyanosis of the visible mucous membranes. After two days of active treatment with stimulants, warm baths and diuretics, the symptoms had disappeared. That great care is to be exercised in the administration of exalgin is evident.

Blood-alkalescence.—The blood-alkalesence is defined by K. BRANDENBURG (Zeitsch. f. klin. Med., vol. 45, Nos. 3 and 4) as the sum of the alkaline valencies as determined by litmus paper. But since litmus is not affected by one of the most important acids present in the blood, carbonic acid, it is necessary to estimate also the degree of concentration of proteid matter in the blood and the free and combined alkali. The proteids possess to a marked degree the power to bind alkali. The free alkali can, however, be separated readily from the proteid alkali by dialysis since the former is easily diffusible. The degree of alkalescence of the blood varies in the healthy, in individuals with anemic or concentrated blood and in many febrile conditions directly with the amount of albumin and water in the blood, so that in these cases titration also gives evidence as to concentration. In uremic coma the alkalescence is sometimes lower than the amount of albumin would indicate so that a pathological acidification must be assumed. The ratio between diffusible and total alkali is, in the healthy, as 1:15; where there is less proteid, up to 1:3; while if there is more than normal it reaches 1:8. The normal proportion for serum is 1:2, for the corpuscles 1:8. The freezing point of arterial blood was found to be 0.56-0.58° C.; it varies with the amount of carbonic acid in the blood.

Detection of Bromine.—A simple method for detecting small amounts of bromine in urine or saliva is given by G. STICKER (Zeitsch. f. klin. Med. vol. 45, Nos. 5 and 6). The iodine is first separated by adding sulphuric acid, saturated with the fumes of nitric acid and then shaking out with carbon disulphide. On now adding chromic and sulphuric acids, heating and holding paper saturated with fluorescein over the flask, this will be colored brown. In saliva bromine could be detected only after larger amounts (1 to 2 grams) had been taken. In normal secretions and in the various organs no bromine was ever found.

Characters of Lymphocytes.—A distinctive difference between lymphocytes and other leucocytes could not be found by A. WOLFF (Zeitsch f. klin. Med. vol. 45, Nos. 5 and 6) since he discovered in them not only granulation and active motion but also could speak for the existence of an active lymphocytosis under certain conditions. The different organs of the hematopoietic system in post-embryonal life do not produce the same cells since the bone-marrow yields most granulocytes, the lymph nodes most lymphocytes, and the spleen the large, mononuclear elements. But in all three localities there exists the so-called indifferent lymphoid-cell, which has retained its power of differentiation and which can vicariously assume the functions of the others. The spleen may readily take on myeloid functions in various pathological conditions not connected with leucemia, such as lead anemia, pernicious anemia and sepsis from erysipelas. The indifferent lymphocyte has its seat of predilection in the bone-marrow and normally yields only granulocytes, but may, in any of the blood-forming organs develop into the other blood-cells if there is demand for them. It is a non-granular cell with round or slightly notched nucleus which is basophile in reaction to dyes. Besides the two generally accepted types of leucemia the author also speaks of a transitional form, characterized by large lymphocytes, which, however, are not true lymphocytes, but the indifferent lymphoid cells above mentioned. Leucemia itself is not considered as analogous to tumor-formation but depends upon a metaplasia of the hematopoietic organs, induced by unknown causes.

Gastric Lavage in Infants.—There is certainly nothing new in the application of gastric lavage to infants, but just as certainly it is a procedure to which the practitioner resorts rather rarely. M. BABONNEIX (Ann. de la Policlin. de Paris, June, 1902) points out that it is a method of treatment of peculiar value in some of the gastric disorders of the very young, and one which, moreover, is associated with very little danger if properly employed. The apparatus is that generally made use of, except that a urethral catheter, number 8 to 30, is substituted for the stomach-tube. Solutions of various kinds have been suggested for the lavage, *e. g.*, of sodium benzoate, thymol, weak peroxide, etc., but the author gives preference to normal salt solutions. The temperature may generally be made lukewarm, but if there be a tendency to collapse it should be raised to body-temperature, or if there be fever it may be lowered. The dangers of the procedure are: Introduction of the tube into the trachea, gastric hemorrhage, tetany (if the method be employed for a great length of time), and finally an increase of the previously existent weakness or collapse. The last is the most real of all the dangers, and often constitutes a contraindication. It is indicated in cases of acute febrile gastroenteritis in which the symptoms of gastritis are prominent, in cases of dilatation of the stomach, and in many cases of infantile cholera. In these conditions, it holds a place of great importance.

Trunecek's Serum in Arteriosclerosis.—In a spirit of some incredulity G. ZANONI and C. LATTES (Gazz. degli osped., July 13, 1902) undertook the treatment of three cases of general arteriosclerosis by this means, with results sufficiently encouraging to justify the paper devoted to the subject; these results being considered no as an absolute indication of the serum's value, but rather as illustrative of the class of cases in which it may be helpful. Headache, tense pulse, dyspnea, attacks of angina and albumin in the urine, together with the sclerotic arterial condition, furnished the indications for treatment. Hypodermic injections of 1, increased to 2 c.c. upon alternate days, and continued till as many as 40 were given, procured amelioration or entire relief of all symptoms, but very little if any change was noted in the arteries; from which the authors conclude that the influence of the serum does not depend upon its power to control or neutralize the deposit of calcium phosphate in the vascular walls, as claimed by its originator, but upon chemical modification of the blood-serum and upon stimulation of nutrition and consequent increased functional power (contractility, elasticity) of cardiac and vascular fibers.

Iron in Latent Malaria.—The frequency with which malaria recurs in patients who have been apparently cured by prolonged and systematic treatment with quinine, and in whom a second infection could be excluded, has been noted by many physicians. Riva-Rocci, in 1901, discovered that injections of the salts of iron induced typical malarial manifestations in those in whom the malarial infection seemed to be eradicated, and advanced the theory that malarial germs might persist in the latent state in the parenchyma of spleen and liver, from which the hyperemia brought about through administration of iron caused them to be again carried into the general circulation, where their presence would give rise to reappearance of malarial symptoms. COVA and BONI (Gazz. degli osped., July 13, 1902) contribute a description of three cases which give some support to this theory. Two of the patients had a history of malaria cured by quinine some months before seen. Injections of iron arsenate used to combat chlorosis caused in both a reappearance of chills and fever. In the third case, that of an anemic baby, in which no satisfactory history could be obtained, injections of iron were used, not only as a curative measure, but also in order to ascertain whether latent malaria were responsible for the child's condition. The occurrence of a typical malarial seizure after two weeks' treatment with daily iron injections, led the writers to the belief that the value of iron in malarial cases may lie not only in its power to combat the anemia which so commonly follows, but also in its serving to diagnose latent malaria, and through its effect upon spleen and liver, to dislodge the parasites from those organs and possibly from the medulla of the bones, driving them into the general circulation where alone they may be destroyed by administration of quinine. The question of secondary infection in these cases is met with fairly convincing arguments for the exclusion of this possibility.

Gelatin as a Hemostatic.—Much has been written lately concerning the subcutaneous injection of gelatin for controlling hemorrhage, and coupled with its use the danger of tetanus infection. KRAUSE (Berlin. klin. Woch., July 21, 1902), from a résumé of the literature, states that there is no doubt that tetanus infection has followed this procedure and that ordinary commercial gelatin is apt to contain the bacillus. He believes, however, that tetanus in such cases has always resulted from improper or insufficient sterilization, and proposes a method to overcome this difficulty. The gelatin is dissolved in sterile normal salt solution and then subjected in a proper container to the action of live steam at 100° C. for half an hour. This process is repeated on five successive days, and if desirable the material can then be submitted to culture tests. If an alkaline solution is desired the admixture of decinormal soda solution may be done before sterilization. This preparation, if hermetically sealed, can be kept for many months.

Septic Endocarditis.—A case of this disease following suppurative tonsillitis is reported by KLOTZ (Deut. med. Woch., July 17, 1902) which was successfully treated by the injection of silver salts. The patient, almost in extremis, was given 9 c.c. of a 1 per cent. solution of collargol by injection into one of the arm-veins. This was followed by a chill and rise of temperature, but also in a few hours by amelioration of symptoms. Her condition being worse again on the following evening, another injection of 8 c.c. was given with a like effect. Two days later a third injection of 7 c.c. was found necessary, but the result was gradual and permanent improvement, and the patient made a good recovery.

A New Germicide.—A combination of commercial carbolic acid and lysoform has been devised by Elsner (Deut. med. Woch., July 17, 1902), which he claims is free from the disagreeable odor and toxic properties of its constituents. He has given it the name "carbollysoform." It contains 66 per cent. of lysoform and 33 per cent. of ordinary carbolic acid. Tests made with cultures of staphylococcus pyogenes aureus show that in a 3 per cent. solution it is superior to a 1 per cent. solution of lysol and in a 5 per cent. solution, to a 3 per cent. solution of a carbolic acid, without their corresponding disadvantages.

Regnault's Mixture in Paludism.—The advantages of this method of treatment are emphasized by V. P. de Sande (El Médico Titular, July 16, 1902) in those cases in which through personal idiosyncrasy against the drug, or other reason, the use of quinine is inadvisable. A special point in favor of Regnault's mixture is its favorable influence upon the malarial crisis; the author's experience coinciding with that of Regnault in the attenuation of all symptoms shortly after administration of the remedy, chill and fever being of much shorter duration. Ten cases were given the treatment as outlined by Regnault:

℞ Tinct. iodin	gram.	4.0	(gr. lx.)
Potas. iodid	gram	4.0	(gr. lx.)
Aquæ distil	gram	100.0	(℥iii.)

M. Sig. A teaspoonful in a little water in the beginning of the malarial seizure, and a second dose 15 or 20 minutes later, if there is not rapid improvement. It is believed by the author that this remedy may be a valuable complement of quinine in the treatment of paludism, in that its influence is active during the malarial seizure, when the plasmodium is in process of multiplication by segmentation; and that this mixture may constitute an agent for the destruction of the pathogenic organism at the time of the crisis, when quinine is considered ineffective. Further, this remedy is valuable in those irregular fevers in which it is impossible to anticipate the time of the seizure.

Injections of Paraffin in Atrophic Rhinitis.—In order to overcome the enlargement of the nasal fossæ, which in patients affected with atrophic rhinitis causes stagnation and decomposition of the secretions upon the mucosa, A. Brindel (Jour. de méd. de Bordeaux, July 27, 1902) in 10 cases practised interstitial injection of paraffin into the inferior turbinated bones, Eckstein's paraffin with a melting-point of 60° C. being used. By this means an artificial hypertrophy of the inferior turbinated bones was produced, and in the cases so treated, the crusts disappeared in a few days and odor subsided. Such reconstruction of the inferior turbinates seems to have effected a complete cure in every instance, but the author feels that further time should elapse before interstitial injection of paraffin can be declared a radical cure for that most obstinate affection, ozena.

Endovenous Injections of Oxygen.—The way to endovenous injection of drugs was first opened up by Guido Bacelli; he it was also who first used inhalations of oxygen at the death-bed of Victor Emmanuel II. To Gärtner belongs the honor of uniting the two remedial measures in endovenous injection of oxygen in animals. Of peculiar interest is the work of F. Mariani (Gazz. degli osped., July 27, 1902) in this line, in that he not only injected large quantities of oxygen endovenously in animals, but also in man. The patient so treated was a victim of pulmonary tuberculosis, and was moribund when first seen by the author. The gamut of all known remedies for this condition had been run without avail, and it was determined as a last resort to essay the endovenous injection of oxygen. By means of an apparatus especially devised by Mariani, 120 c.c. of oxygen was injected into the plantar vein within a space of 45 minutes. This site of injection was preferred to the arm in the belief that in the longer passage from the foot to the heart the oxygen would more probably be absorbed by the blood. Previous to the injection the patient was cyanotic, body covered with cold sweat, dyspnea severe, respiration 54, pulse 144, temperature 28.5. Five minutes after the injection there was a change for the better, and within an hour there was a diminution of 14 in the respiration and 24 in the pulse. Improvement continued throughout the night, but the following day a relapse occurred and death seemed imminent. At the patient's request a repetition of the operation was attempted, but isolation of a vein was impossible without extensive dissection, and the attempt was abandoned. From the work done the author draws the following conclusions: (1) That oxygen is completely absorbed by the red cells, when injected endovenously, and such injection does not give rise to gaseous emboli; (2) that injections should be made slowly, not more than 500 c.c. being injected in an hour, so that the oxygen may have time to be absorbed; (3) that in clinical therapeutics endovenous injection of oxygen is valuable in pulmonary affections with severe dyspnea, formation of oxyhemoglobin being favored thereby.

Treatment of Chorea.—Any contribution which is made by Prof. Comby of Paris to the therapeutics of infancy, especially if advanced with the enthusiasm which marks his recent article on chorea (Méd. mod., July 2, 1902), is bound to command the attention of the profession. He summarizes his method, which he believes to give better results than any other in vogue, as follows: Absolute rest in bed for at least 15 days; relative isolation, no games, no intellectual work, *i. e.*, cerebral repose; no wines or other alcoholics, no tea or coffee; only water or milk to drink, combined with a vegetable diet, and in case of arsenic treatment absolute milk diet. The medication is rather striking. He employs only two drugs, arsenic or antipyrine. The arsenic is used in the form of arsenious acid, which is given in frequent doses very highly diluted for eight to 10 days. The dose of the drug runs from 30 mgms. at the commencement to 170 mgms. per diem at the height of the treatment, notwithstanding which the author has only once observed toxic effects. The tolerance depends on the manner in which the drug is administered, and on the fact that the kidneys are actively stimulated by large amounts of water. If antipyrine is used, he gives 50 cgms. (⅘ of a grain), repeated as many times daily as there are years in the child's age.

Action of Urotropin.—Bacteriological examinations of urotropin, lead A. Goetzl and G. Salus (Zeitsch. f. klin. Med., vol. 45, Nos. 5 and 6) to the following conclusions; (1) Urotropin is an active antiseptic which acts bactericidal upon C. typhi, coli, proteus, staph. pyogenes, in 5 per cent. solution, at room temperature; (2) in 3 per cent. solution it retards considerably ammoniacal fermentation of urine; (3) it is particularly active towards the typhoid bacillus; (4) by raising the temperature to 37°, the antiseptic action is enhanced; (5) the action is dependent only to a slight degree upon formaldehyd since the amounts of this substance split off are only minimal; (6) upon moulds, urotropin has no effect; (7) the presence of albumin does not reduce the antiseptic action; (8) concretions of uric acid kept in 1 per cent. urotropin solution, lose 70 per cent. of their weight in 14 days. In conclusion, the authors coincide with others upon the high therapeutic value of the drug, but recommend larger doses.

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THE STRENUOUS LIFE.

WHILE the Nation is congratulating itself and President Roosevelt on the latter's recent narrow escape from death or serious injury by an ill-managed trolley car, it is natural that we should be reminded of what seems a leading characteristic of this man; namely, that he consistently lives and does not hesitate to preach to us the advantages of resolute and vigorous living—"the strenuous life." Like many proverbs, this phrase is trite already in every English-speaking land; also, like many proverbs, it is full of the most philosophic wisdom. To have put this concept, the epitome of the spirit of the times, so earnestly before men's minds is well-nigh of itself enough to mark the President not only as the man of the hour, but as the promised prophet of the future. For the generality of men this phrase means much. For what does it stand to the physician?

To no class in a greater degree than to medical men does this much-meaning expression appertain. No profession impels its members to a greater general strain than does that of medicine. None takes deeper hold of every aspect of a man's being, of his body on the one hand and on the other of his intellect, his feelings, and his will. The average physician day by day leads the strenuous life, and for the most part he leads it well. Here as elsewhere, of course, relativity is complete, and a day "strenuous" for one might seem to his neighbor an unusually easy day. In such terms, purely quantitative, might we define one sense in which strenuosity applies to the life of the medical practitioner—labor more or less hard, hours more or less long without intervening rest, so much worry, so many cases a day, each with its wear of hand and brain. Each physician concerned will see that the amount of this sort of activity is adapted to his desires, or to his merits, or to his "luck."

In the general strenuous idea of Theodore Rooseelt there is something more than this. As applicable to medicine and its practice there is much more, and part of that increment is of especial force and meaning. It is only from an unworthily sordid viewpoint that a medical practice can be appraised and valued merely in proportion to the actual hours it consumes weekly in the care and study of patients. The number of these hours, other things being equal, may be an accurate index of the monetary income of the practitioner; yet he, more than the man of any other class, save perhaps the clergy, knows that this money is not the best reward of the true physician's days. To very many this strenuous life is in great part its own reward, full always of the unexceeded zest and satisfaction of useful living. On these other modes of payment for human service depends the proper qualitative gage of a strenuous medical life. These things help to measure success in the struggle against more things than poverty.

Outside of actual practice the medical man has privileges helping to strenuosity qualitatively considered, and these, too, help to make his life well worth the living. Among other privileges the physician has the social meetings with his professional friends in the medical societies, and these count for much to him if he does his part. He has the satisfaction, by no means small, of keeping more or less in touch with the worldwide development of biology. He has interest in his college still, and attends alumni reunions occasionally, renewing thus his surely strenuous youth in the medical school. He has or may have something of original research to do, thus adding his mite to the yearly gains of our ancient medicine. All these are but examples of possible elements of strenuous medical life.

But again, and quite outside of medicine, outside of science even, the medical man has opportunities of realizing this strenuous life more fully than on the average he does. In three phases especially should it appeal to him: The American physician is a citizen of no mean country; he is a forceful member of the greatly privileged class of teachers, as his doctor's diploma implies; and he has that intimate and far-reaching experience of mankind which best fits an individual to be a philosopher and a friend of all the world. In these three things, among others extraneous to his practice, lies much of the possibility of a strenuous life as the popularizer of the phrase means it. The physician has opportunity to do his duty vigorously as a citizen, to enter as he can into politics, that his technical knowledge and experience may be of use in an ever wider sphere. He has opportunity to make it his constant endeavor to promulgate both physical and moral right-living. He has opportunity and need, for purposes of his own personal satisfaction and happiness, to extend his view beyond empirical science now and then into the profounder depths and wider regions of philosophy and of the whence and why and whither of humanity. Thus in doing and in knowing may the physician round out his days in a strenuous life whose satisfactions reach far beyond all else he can attain.

"THAT DOT-LET ON THE EYE."

THE refusal of the authorities in Philadelphia to grant a charter to a proposed "optical college" with a curriculum of two months is, it strikes us, not only a step in the right direction, but a gigantic stride forwards. At all events, it shows in this case that the angels do not always fear to tread even on the toes of the by no means fools who are naturally anxious to rush in, and it will also serve as a protection to one of the specialties that is much in need of it. For years ophthalmology has been the favorite and profitable field for the charlatan and empiric; and to such a degree has it been worked by unscrupulous and advertising quacks that the simple and easily understood appellation of "oculist" has grown into a term of reproach, and has become an indication of such ethical irregularity, that its use by members of the National Society has been forbidden by its constitution.

That this is natural is evident on a little reflection, for it is here, as it is also in venereal diseases, that the very conditions of treatment are found which give the most striking results with the least outlay of knowledge. For as there are few cases of syphilis that will not show signs of improvement from the use of mercury and the iodides, so also are there few ocular lesions that do not grow better under the instillation of atropia. This may be met by the statement, which is undeniably true, that in certain cases, particularly where the intraocular tension is abnormally high, it does positive harm, as in glaucoma and serous iritis, but fortunately for the quack and unfortunately for the legitimate specialist, these cases are in an infinite minority as compared with the combined majority of all the others. Ambitious general practitioners, too, have been known to mistake the initial stages of iritis for conjunctivitis, so that the Mulberry Sellers "eye-drops" with its scattering shotgun has often hit the mark with some of its pellets of atropin when the family doctor's single rifle-ball of astringents has missed. A. relates this "cure" to B., who, finding that a dilated pupil is an aid to the defective vision of incipient cataract, promptly soothes with it the corneal ulceration of C., and *fama volat* the whole alphabet is in line, and the "millions in it" pass not to the hands of the men who have made a life-study of the subject, but into the pockets of those who know but little and care still less.

All this and more has the ophthalmic surgeon had to contend with; but as long as he *was* a surgeon it mattered little, as operative work was his salvation. But the success of the early days hastened by its very skill the arrival of the time when the necessity for such operations had, to a great degree, passed away. The preliminary crop of cataracts had been garnered and stored, while improved methods of general treatment had decreased the succeeding number, and the early adjustment of glasses had lessened the necessity for tenotomies, so that the office-work of those engaged in the specialty gradually resolved itself more and more into a routine of fitting lenses.

But even here competition from the outside entered largely, and as the optician became more used to filling prescriptions he grew bolder, and the so-called "refractionist" sprang into existence, fitting cylindric and even prismatic lenses, and at times doing incalculable harm and yet escaping the evils of failure and consequent loss of patronage, simply because the vast majority of the cases seeking his aid required only simple glasses. That there was such a thing as either relative accommodation or latent hypermetropia, he did not know, and spasm of the ciliary muscle or insufficiency of the recti suggested nothing to his mind. A realist only, he took things as they seemed, and fitted each eye as if it had been a separate metal optical machine, satisfied with a combination of the two that gave the highest visual acuity to each, and often suggesting lotions and nostrums as well as giving advice in regard to the general care of the eyes.

Then the department stores, thinking that it was likely to prove a profitable venture, added an optical annex to their shops and widened their commercial phylacteries with glowing advertisements of the convenience of their "parlors" and the skill of "*our* trained refractionist," with a few telling words thrown in as to the advantages to the suburban shoppers of finding everything under one roof, and the economy of commanding the services of an educated specialist with no fee to pay beyond the price of the glasses.

Meanwhile the profession at large were making every effort to protect themselves and the public. Laws were enacted to prevent quackery and put a stop to advertising, resolutions were passed condemning the prescriptions of medicines by apothecaries, and interstate regulations went into force compelling all physicians resettling within their jurisdictions to undergo fresh examinations. A graduate of one of the leading colleges of the country, a member in good standing in all his societies at home, might move into another State and be prohibited from prescribing a Dover powder or advising a poultice, until he had obtained a license, while "the man from nowhere" can enter almost any community, can flaunt his occupation of "optical expert" and his individual attainments therein in the faces of its inhabitants, and misuse the strongest of all remedies locally in their eyes, so long as he abstains from internal medication; in other words until he intrudes on the domain of the general practitioner.

We do not mean by this to decry the laudable efforts of the profession to protect the public, nor do we impugn their motives. Medicine is a science and not a trade, but the laborer is worthy of his hire, and man cannot live by bread alone. But if the trunk of the tree needs a sustaining prop, surely the branches require a careful pruning and thinning out lest they fall to the ground and wither. There is more in modern ophthalmology than the use of atropia, and the life of the medical student at the present day is not all beer and skittles. Most of the higher schools demand, if not always a college degree, at least the satisfactory evidence of a previous education, and the course has been generally extended to four years. Add to this a year as an interne in a hospital, and a year or two more spent in special training, and place against the sum total the prospectus of the proposed college, which seeks "to establish an institution in which should be provided a course of instruction in the science relating to the structure of the eye, and the laws of vision, and to qualify its students as skilled opticians. They would also be instructed so they could recognize *any* pathological condition in the eye and be able to refer the applicant to the proper course of treatment." *The course of studies was to be completed in two months.*

The charter was not granted in Pennsylvania, but if it is given in other States, it would be better perhaps for the young graduate to seek a more lucrative employment—such, for instance, as keeping a livery-stable in Venice.

"THE UNSPEAKABLE SCOT."

Perhaps now that "Scotland 's burning" at the affront of Mr. Crosland's satiric book and all the blue bonnets are over the border in their efforts at retaliation, it would be well to listen to the piping pibroch of an eminent Scotch physician, which has gathered volume enough to make its wailing audible amid the din of fight. This is, strange to say, a eulogy on the merits of Caledonian cookery and a warm testimonial in favor of the national dishes of haggis, scones and oatmeal. To this may be added a general and *ipse-dixit* assertion that the clansmen and overborderers are not affected with dyspepsia and that dentists are unknown in the "land of the leal." There have been hitherto few defenses of Gaelic cooking; probably because so many people have been in Scotland.

The Scots are a hardy and a cleanly race, as tough and well-scrubbed as the golf-balls of their national game, but statistics of non-fatal diseases are difficult to gather, and it would take more than the word of one dour physician—even if he were Ian Maclaren's *MacLure* himself—to convince the Anglo-Saxon that a pudding of entrails, chopped up with leeks and boiled in the maw, is any more digestible than it is appetizing.

As for scones, once, and only once would be the limit of saying "Zu Zu" to the Highland grocerman, while bannocks, which their own proverb says "are better nor na kin bread," are certainly not better than anything else. It is, however, for oatmeal and the use of the cereals that we are indebted to Scotland, and the increase of their consumption in this country has been most marked within the last ten years. To be sure they are used by us as breakfast food, pure and simple, and it is rather remarkable that Scotland is about the only country that has not contributed some national dinner-dish to add to the gaiety of nations, but her peculiar specialties are seldom seen or smelt outside of some Gaelic banquet given by patriotic sons in honor of their "ain countree."

So far as dentistry is concerned, while the Scots have certainly made less progress in it than they have in either medicine or surgery, it is still an open question whether the supply equals the demand, or if their teeth are not treated by the same heroic method that the aged chieftain applied to his foes and who consequently had no enemies to forgive on his death-bed—simply because he had killed them all. The Highland gillie pulls out the decayed teeth of his cattle, and it is only natural therefore to suppose that he would do as much for his family, leaving them to pursue in their later years the passive and inevitable course of old Uncle Ned when he had to let the hoecake be. But as a nation the Scotch are not addicted to sweets, nor are they blessed with a pie belt or crowned with a doughnut zone. They are, however, given to an outdoor life with athletic sports, and to a plain if unattractive diet, and an ounce of these is worth a pound of pepsin.

Sandy is a proverbially canny individual, and if there is no gold in his teeth we have a shrewd suspicion that it is because he prefers to keep it in his sporran. There are some flowers that waste their sweetness on the desert air, but "it 's na so wi' the thistle."

THE GERM OF SUMMER-COMPLAINT.

The daily papers during the present week have announced with sensational accessories of various kinds that the specific microbic cause of summer-complaint had been isolated and one of the greatest etiological problems in medicine solved. As to the truth of the rumor we have no way of judging, though that there is something trustworthy in it would seem to be clear from the fact that Prof. Welch of Johns Hopkins lent to it the sanction of at least partial confirmation. The discovery is said to have been made by two young physicians, Drs. Duval and Bassett, working under a research grant from the Rockefeller Institute at the Thomas Wilson Sanitarium for Children, just outside of Baltimore. No details of the discovery, beyond the startling main fact itself, were obtainable before going to press.

Summer-complaint is one of the gastro-intestinal diseases, with such a marked specificity of symptoms that almost from the rise of bacteriology the impression has obtained that it is due to a specific germ. More than one bacteriologist of prominence has been sure that he had isolated the offending microbe, and at least two or three false announcements have been made. It is, however, very possible that the Baltimore investigators have succeeded where others failed. We sincerely hope that the rumor is true, since the discovery would be a credit to American medicine. But we deprecate the unseemly way in which the sensational publication of the alleged discovery has been permitted before any formal scientific statement of the results was possible. It seems unfortunate that the name of the Rockefeller Institute should be dragged into what may prove a mere canard. Almost invariably the ultimate scientific value of an announced discovery is in inverse ratio to the amount of noise made over it when first brought to public notice. Let us hope that this will not prove true in the present instance.

ECHOES AND NEWS.

NEW YORK.

Business Committee of the Medical Society of the State.—The following gentlemen have been appointed as business committee by the President, and will have charge of the program for the next meeting, January 27-29, 1903, at Albany: Dr. Ernest Warde, chairman, 471 Delaware Avenue, Buffalo; Dr. Hamilton D. Wey, Elmira; Dr. J. Montgomery Mosher, Albany.

City Hospitals Badly Off.—The structural conditions of Bellevue Hospital are described by the trustees of Bellevue and allied hospitals in a report sent to the Mayor as antiquated and unsanitary. The report also dwells upon the inadequate facilities for the reception and examination of patients, the overcrowded sleeping rooms and unwholesome quarters of the employees, the indecent conditions of the prison wards and the unsatisfactory method of cooking and serving the food of the patients. The trustees recommend the erection of a new hospital. In the paragraph on the prison wards the report goes on to say: "The prison wards remain a disgrace to the hospital and to the city. Both wards are in the basement. The men's ward is about 40 feet long by 20 feet wide and eight feet high, with two windows on only one side, giving about 500 cubic feet of air to each of the 13 beds, the minimum exacted in the tenement houses by the Board of Health being 600 cubic feet. The report says that Gouverneur Hospital is the only modern fireproof hospital owned by the city. The Harlem Hospital has been allowed to get into a very dilapidated condition and the Fordham Hospital is in need of repair. Tabulated statements accompanying the report show that during the months beginning February 1, 1902, and ending June 30, inclusive, 12,124 patients of all nationalities were admitted into Bellevue and the allied hospitals. The report shows also that during the months of February, March, April, May, and June the expenditures and liabilities were $346,173.68.

Work of the Fresh-Air Charities.—Although there are other conditions besides excessive heat which contribute to sickness among the children of the poor during the summer months, the absence of the usual heated term this summer has reduced the contributions to our fresh-air charities to an extent which has considerably cramped their operations. The testimony of these organizations goes to show that the demands upon their respective lines of work have been equal to those of last year, when the summer was exceptionally hot. The managers of the Sick Children's Mission of the Children's Aid Society say that the applications for medical attendance upon sick children of the poor have been quite as numerous as those of last summer. The capacity of the society's Health Home at Coney Island has been taxed to the uttermost during the entire season. At this health-giving resort 3,118 mothers and sick infants have been entertained for a week, while 4,779 poor women and children have spent a pleasant day there. At the society's Summer Home at Bath Beach 4,150 delicate children, selected from the poorest tenement quarters of the city, have been treated to a week's outing, while 500 poor cripples and little children from the various day nurseries of the city have enjoyed one or two weeks' sojourn at the home. In addition to these, the society has given 2,600 poor children a pleasant day's outing at the Boys' Farm at Valhalla, N. Y., and 2,750 boys have been enabled to spend a week at that picturesque resort. In connection with the work of the Children's Aid Society alone these statistics show that even in a comparatively cool summer there is no lack of subjects upon whom the benefactions of charitable people can be advantageously expended, not simply in conferring happiness, but in establishing health and reducing the death-rate of the city.

CHICAGO.

Return of Dr. Senn.—Dr. Nicholas Senn recently returned from St. Petersburg and a long journey to the Orient.

Rush Medical College.—At a recent convocation the President of the University of Chicago, Dr. Harper, made a statement to the effect that the medical department of the University (Rush Medical College) had been paid a gift of $50,000 and that the expenses of the department for the year had been less than the estimated amount.

Death-Rate During August.—According to the Weekly Bulletin of the city health department there were 2,330 deaths from all causes reported to the health department during August, 1902, or 161 more in number and 3.9 per cent. more in the annual rate per 1,000 of population, as compared with the figures of August, 1901. The annual death-rate per 1,000 was 15.06. The report shows that 610 children under one year old, died; that 597 deaths were caused by acute intestinal diseases; 193 by typhoid fever; 177 by violence; 181 by consumption and 136 by heart diseases.

The Suppression of Typhoid Fever.—When the excessive incidence of typhoid first forced itself on the attention of the health department, and when study showed the so-called storm-center to be located in the Ghetto district, efforts for suppression were concentrated in those areas. But the work the department was able to do served mainly to show how futile and inadequate were its resources. Food, chiefly fruit and vegetables, unfit for human consumption, was condemned and sprinkled with kerosene, but the department had no authority similarly to sprinkle with kerosene the 20 per cent. of dwellings found in these areas unfit for human habitation. Typhoid fever contributed in August nearly 70 per cent. of deaths, the comparative numbers being 83 for August, 1901, and 193, or 110 more, for the same month in 1902. This is the greatest number of August typhoid deaths ever recorded in Chicago, the highest number previously having been 182, in 1891. Since then the August deaths have been 179, 76, 52, 59, 64, 42, 45, 62, 34, and 83 for the respective years 1892-1901. These figures are cited to show that the department has been arousing no unwarranted alarm in its utterances on the typhoid situation during the last three or four weeks. They show an increase of fully 57 per cent. in the typhoid mortality of August, 1902, over the average August typhoid of the previous 10 years.

To Analyze Water.—For the purpose of determining to what extent the waters of Lake Michigan are polluted, not only by the sewers of Chicago, but by those of every other town along the lake-shore from the Wisconsin to the Indiana State line, the State Board of Health intends to make an exhaustive series of analyses of the lake-water. Samples of the water will be collected under all possible conditions, and the work carried on by bacteriologists of high reputation. This action on the part of the State officials will be undertaken largely because of the present epidemic of typhoid in Chicago, and will begin as soon as possible. The Board of Education also has decided to have comprehensive analyses made of the city water supply to determine whether it can safely be used by children in the public schools. Dr. John H. Long, Professor of Chemistry in the Northwestern Medical School, will have charge of the work, and the bacteriological examinations will be made by Professor Zeit of the Northwestern Medical School and (probably) Professor Jordan of the University of Chicago. Samples of water will be analyzed in the light of the most recent developments of bacteriological and chemical science. The work will take several weeks, and its results are expected to be authoritative.

PHILADELPHIA.

Dazed by Nitric-Acid Fumes.—Daily papers report the nine days' wandering of Robert Madison, who, three weeks before it began, had inhaled the fumes of nitric acid from a broken carboy of that material. The man cannot tell where he was while away from home, except that he remembers hearing mentioned the part of the city he was in. A man working with Madison at the time of the accident died from the effects of the fumes.

Smallpox Still Exists.—Under the above heading the Press, in a virile editorial, compares Philadelphia with New York and Rochester in the matter of stamping out smallpox during the summer. The comparison is not favorable to Philadelphia, whence, it is stated, we ought to be able to say, like those other cities, that smallpox has been banished. Only two new cases and one death were reported for the week ending September 6, but these are too many.

Typhoid Fever Still Increasing.—Typhoid fever still prevails to a somewhat alarming extent. For the week ending September 6 there were 120 new cases and eight deaths from that disease. It remains scattered throughout the city. Officials of the Bureau of Health are unable to explain its presence in the form exhibited. Reports by the assistant medical inspectors show that in many instances the patients first developed symptoms of the disease while absent from the city on their vacation. There is, however, some significance in the fact that only two cases were reported last week from Manayunk, which is now receiving an abundant supply of filtered water.

CANADA.

British Columbia Medical Society.—The third annual meeting of this society was held at Vancouver, August 29 and 30, under the presidency of Dr. R. F. Walker of New Westminster, B. C. Dr. J. M. Pearson of Vancouver acted as secretary. Among others who were present was Dr. E. C. Dudley of Chicago, who contributed a paper on gynecology. The society decided to extend an invitation to the Canadian Medical Association to convene in Vancouver in 1904.

The French Medical Society of North America.—This association of the French physicians of the United States and Canada was organized in June at Laval University, Quebec. Over 200 delegates were present to listen to some eight papers. The society will convene again in 1905 at Montreal under the supervision of the following officers: President, Dr. Foucher of Montreal; first vice-president, Dr. Ahren of Quebec; second vice-president, Dr. Petit of Nashua, N. H.; third vice-president, Dr. Rouleau of Calgary, N. W. T.; secretary for Quebec, Dr. Art. Simard; secretary for Montreal, Dr. LeSage.

Personals.—Dr. Goldwin Howland of Toronto University has been appointed registrar at the National Hospital for Nervous Diseases, London, England. Dr. C. W. Hopkins has been appointed house surgeon at the Montreal Maternity Hospital. Dr. W. G. Turner has succeeded Dr. von Eberts as medical superintendent of the Montreal General Hospital. Dr. William Osler has been summering at Murray Bay on the St. Lawrence. Dr. C. A. Dugas, who for some years was assistant to the late Dr. Wyatt Johnston, autopsist for the district of Montreal, has been appointed his successor. He will have as his assistant Dr. D. D. MacTaggart. Dr. Herbert E. Roaf, a recent graduate of Toronto University, has been elected colonial fellow at University College, Liverpool, Eng., and will prosecute studies in tropical and zymotic diseases. Dr. Telesphore Parizeau of Montreal has been appointed Professor of Pathology at Laval University, Montreal, to succeed the late Dr. J. A. S. Brunnelle. Dr. G. H. Merrill of Montreal has been appointed to succeed Dr. Brunnelle as Assistant Surgeon at the Hotel Dieu Hospital. He is at present Assistant Professor of Clinics at Laval. He is a graduate of the Victoria School of Medicine of 1876. Dr. James Stewart, Professor of Medicine in McGill University, has returned home after an extended tour of the Canadian Northwest. He considers the climate around Calgary exceptionally fine for the treatment of consumptives and thinks that a large sanatorium for the treatment of tuberculous patients should be erected near that place. Dr. J. A. McKenzie, Assistant Superintendent at the Nova Scotia Hospital for the Insane, is paying an extended visit to the hospitals of New York. Dr. Fred. Montizambert, the Director-General of Public Health in Canada, is paying his annual visit to the Williamhead quarantine station off British Columbia.

GENERAL.

Cholera in Italy and Egypt.—Cholera has broken out in Robilante, Italy, and much anxiety is felt in Rome, where the sanitary condition is especially poor this year, owing to the extreme heat. Out of 300 cases in Robilante 20 have succumbed to the disease. The epidemic is supposed to have originated from a workman returned from Egypt, where, since July 15 there have been 2,238 cases of cholera, of which 1,696 died.

Dr. Schweninger Again.—Drs. Baas (Worms) and Sudhoff (Hochdahl) have uttered an urgent protest in a recent number of the Münchener med. Wochenschrift against the appointment of Schweninger to the Chair of the History of Medicine. They suggest a collective protest from the entire profession. Dr. Schweninger's past career has been microscopically examined, and its evolution traced throughout to the influence of "pulls" in high quarters.

Chairs of Homeopathy in Bavaria.—The governmental bodies in Bavaria, which go by various complex titles, have recently begun to take great interest in scientific affairs. This has now manifested itself in a recommendation for chairs of homeopathy, the initiative to be taken in the famous University of Würzburg. Presumably the matter will be arrested in this stage, as happened within the last few years in Würtemberg under similar circumstances.

Mr. Rockefeller Asked to Aid Smallpox Investigation.—Health Officer Friedrich, of Cleveland, has sent a letter to John D. Rockefeller, calling his attention to the fact that medical science had as yet failed to discover the smallpox germ, and that such a discovery would probably mean the elimination of much human misery and the saving of many lives. He asks Mr. Rockefeller to provide a fund for the purpose of having an investigation carefully carried on.

Inoculation Against Typhoid Fever.—Prof. A. E. Wright of the Army Medical School at Netley, England, has published the results obtained by anti-typhoid inoculation. He was anxious to have inoculation introduced into the army, but Lord Wolseley, then commander-in-chief, refused to consent until Lord Lister urged it upon him. It is demonstrated that a marked advantage was achieved by the inoculation. Fewer cases occurred among those inoculated, and fewer deaths among the inoculated who were attacked by the disease.

Cancer Research in London.—The London Cancer Hospital has completely reorganized its pathological department with reference to investigation concerning the etiology and treatment of cancer. A new laboratory, furnished in the most modern manner, is to be added to the old. Another pathologist, with a salary, is to be joined to the force, now under the direction of Dr. H. G. Plimmer, who will be director of the department. Some of the many problems which have recently arisen in connection with cancer will thus, it is hoped, be brought to a solution.

Insanity Experts' Congress.—The members of the international conference on the treatment of the insane closed on Saturday at Antwerp, after passing the following resolutions: That the confinement of the insane henceforth be abandoned except in the cases of those recognized as dangerous. That the system of boarding insane persons with families be carried out whenever possible. That it is expedient to renew the wish formulated at the congress at Paris for the establishment of schools for special classes of the mentally weak under medical supervision. That the manner of placing patients be entirely left to physicians. That forcible restraint should be condemned.

An Antituberculous Dispensary.—A dispensary for indigent tuberculous patients has recently been opened in Milan, modeled upon one at Lille, which has accomplished much for the relief of these unfortunates. It is intended not only to furnish gratuitous medical treatment and advice, but to provide sputum-cups and antiseptics, regulate the home hygiene, furnish nourishing food when necessary, and give financial aid during the period of incapacity for work. A further extension of the plan for assistance is hoped for in the future establishment of an agricultural colony where work can be done by patients in the open air till they are able to resume their regular vocations.

The Gallia County Medical Society.—The regular monthly meeting of the Gallia County Medical Society was held in Gallipolis, Ohio, September 2, 1902. Dr.

C. G. Parker, President, read his inaugural address. Dr. T. L. Chadbourne, Resident Pathologist of the Ohio Hospital for Epileptics, presented a specimen from a case of diaphragmatic hernia in which the patient, an epileptic, died unexpectedly after a few hours' suffering from abdominal pain and distension following the ingestion of a large amount of unripe fruit. The stomach, transverse and portion of the ascending colon, all greatly distended, were found in the left thoracic cavity, protruding through a hernial ring in the diaphragm. Death was ascribed to the pressure of the distended intestinal viscera upon the heart and lungs.

Gift to the Royal Hospital Fund.—For years King Edward has taken the deepest interest in hospital work, and Queen Alexandra has taken equal interest in nursing. The London hospitals have greatly needed assistance, and the King, as Prince of Wales, established a fund in his name to aid them financially. It is now called King Edward's Hospital Fund, and has just received a gift of property estimated to be worth at least $2,500,000. The donors are Lords Strathcona and Mount Stephen, Canadian millionaires, who some years ago received peerages for their great services to the empire. The Spectator hopes that some English millionaires will imitate their colonial rivals, "who seem to have caught generosity by a sort of geographical contagion from the American men of wealth."

Poor Quarantine in the Philippines.—In a report made by Surgeon H. A. Stansfield, the medical officer in charge at Cebu, Philippine Islands, to Chief Quarantine Officer Perry on the subject of the cholera epidemic, it is stated that cholera was introduced into Cebu by a man who insisted on bringing the body of a cholera victim from Leyte, and burying it in Cebu. The President of Tobogan refused to let the boat carrying the dead body land, but the authorities at Catmon received it, and thereupon the epidemic in Cebu began. "Absolutely no quarantine," reports Surgeon Stansfield, "is imposed on the land side of town, and I look for a general infection of this island. Moreover, the people desiring to leave here are allowed to do so. The work being done here by the local officers is extremely bad. A cholera hospital has been established, but agitation is going on here to have cases treated in the houses. There is no quarantine camp here for suspects."

French Infant Mortality.—M. Gaston Leroux publishes in the Matin an article on the infant mortality caused by bad and adulterated milk. He quotes statistics of a most painful nature, which would seem to demonstrate beyond doubt that an enormous percentage of the children who die annually in France are literally poisoned by bad milk. This article is illustrated by a map of France, on which the greater or less infant mortality from that cause is indicated by small or large black spots. A glance at it shows that France may be divided into two regions, one to the north of the Loire, where more than half the children who die succumb to gastritis, the other to the south of the Loire, where not more than one-third die from that disease. Explaining the phenomenon of the high rate of infant mortality from gastritis to the north of the Loire compared with that in the south of France, M. Gaston Leroux says it is due to adulteration in the north, where the making of butter is a great industry; whereas very little butter is made in the south. He considers that it is now completely established that to feed children even on unadulterated milk which has been skimmed of all the cream is a dangerous and guilty practice.

Americans Living Longer.—The Census Bureau has issued a statement showing the increasing age of the population from decade to decade. The statement gives the results of computing the median instead of the average age. The median is such an age that half the population is under it and half is over it. The median age of the total population in 1900 was 22.8, as compared with 21.9 in 1890. The median age of the white population in the last census year was 23.4, and that of the colored population, including negroes, Indians and Mongolians, was 19.7, while in 1890 that of the white population was 22.4 and that of the colored population 18.3. The report shows there was an increase in the median age of the white population during each decade from 1810 to 1900 amounting in the 90 years to 7.4 years. The statement adds: "Many complex influences have cooperated in producing as a resultant this steady change in the age composition of the population. Three may be mentioned—the rapid progress of medical and sanitary science, which has tended to increase the average length of life; the decrease in the relative number of children born, which has made the earlier age periods less preponderant numerically in the total population, and the influx, especially since 1840, of great numbers of adult immigrants, increasing the number in the older age periods."

Still Swindling Physicians.—In our issue of Saturday, November 23, 1901, we stated that Pinkerton's National Detective Agency, through its New York office, had advised us of the operations of a swindler and forger who was forging the names of physicians in different cities and towns as endorsements to bogus checks passed by him upon banks in which the physicians whose names he forged had accounts. The Pinkertons now advise us that this swindler is still at work, he having recently obtained $118 from a bank at Lowell, Mass., on a forged endorsement of a physician of that city. In Lowell the swindler used the name of M. W. Harney. He pretended to the physician whose signature he obtained that he represented the National Publishers' Association, 110 Fifth Avenue, New York, and solicited the physician's membership to obtain medical works at 25 per cent. discount on all books and periodicals purchased through the association. At first he asked for a membership fee of $2, and when the physician refused to pay this it was waived, and in this way the swindler obtained the signature of the physician and the name of his bank. In the past, "Harney" has used such names as C. J. Merrill, Chas. J. Parsons, John T. Corson, H. A. Mann, D. A. Mason, and more recently, in Connecticut, Henry A. Marling. The swindler is rather a dapper-looking young fellow, thirty years of age, five feet eight inches tall; weight about 140 pounds; slender build; light complexion and hair; blue eyes; rather large nose; usually clean-shaven. The Pinkertons seek the cooperation of physicians in his apprehension, and they suggest that if he calls upon any of our readers they show no suspicion, but furnish him with their signatures and bank references, then immediately warn the banks where they have their accounts. The local police authorities should at the same time be advised. If the Pinkertons, who are interested for the American Bankers' Association, are communicated with they will give any information immediate attention.

Obituary.—Dr. William O. Xander died in Philadelphia September 7 in consequence of a fracture of the skull by a fall from his carriage. He was graduated from the University of Pennsylvania in 1895. Dr. Edward B. Van Dyck of Philadelphia, sixty-seven years of age, died suddenly August 31. He was graduated from the University of Pennsylvania in 1856. Dr. Claudius Buchanan Webster, who was the oldest living alumnus of Dartmouth College, died at Concord, N. H., September 7. He was born in Hampton, N. H., December 10, 1815, practised medicine in early life, then for 18 years was principal of the Norwich (Conn.) Female Seminary. In 1862 he became an assistant surgeon in the United States Army, serving until the close of the war. He was in 1870 appointed United States consul to Sheffield, England, by President Grant, and filled the position until 1886. His father and three brothers, besides himself were graduates of Dartmouth College. One of his brothers was Major-Gen. Joseph D. Webster, chief of staff to Gen. Grant.

OBITUARY.

RUDOLF VIRCHOW.

On Friday afternoon, September 5, there passed away the man to whom modern medicine is more indebted than to any other for a century, and who must ever be accorded a place in the annals of science beside the great discoverers to whom the world owes the revelation of new truths, valuable not only for the information they contained, but still more for their suggestive import. Rudolf Virchow is undoubtedly one of those who were not born to die. Long after the crude theories that now find a place in medicine are forgotten Virchow's name will still live because the observations he made are immortally based in the truth of nature itself.

RUDOLF VIRCHOW IN 1859.

Virchow's career was reviewed very recently on the occasion of the celebration of his eightieth birthday, but his work represents so much that is of importance to present-day medicine, the example of his success forms so lasting a monument of what can be accomplished under not especially favorable circumstances, and his years of patient labor are so encouraging a model for the medical investigator, that the repetition of the principal features of his long life cannot but prove an inspiration to the students and workers now called upon to mourn his loss.

Virchow was the son of a small shopkeeper who eked out his commercial gains by farming in the neighborhood of the little town of Schivelbein in one of the poorest provinces of the German empire, Pomerania. Until the age of thirteen years young Virchow received his education at the village school. He was then for four years at the gymnasium of Köslin. At the age of seventeen he passed the "abiturient" examination, and as his parents' circumstances had improved somewhat he went to Berlin to study medicine. Berlin was not at that time the important city it has now become, and its university—not to be mentioned with Vienna or Paris—was not to be famous until Virchow himself as a teacher and discoverer should secure for it a worldwide reputation. The young Pomeranian was sent to Berlin because it was one of the universities nearest to his native town, and very probably because living was cheaper than in the larger cities.

It was probably fortunate, however, that Virchow was not brought too closely in contact with the Vienna school, whose work his discoveries were destined to supersede, for the preponderating influence of Rokitansky's name might well have diverted the originality of his untrammeled genius. Under the fostering care of Johannes Müller, who was not a great teacher in the ordinary sense of the term, for he failed to keep up the interest of his class, but whose magnetic personality drew to him in a wonderful way such men as Henle, Schwann and Virchow and inspired them with the ambition of original work, Virchow's powers were developed along just the lines which his genius sought. After his graduation he became the prosector in anatomy at the university. Among the men who were young members of the Berlin medical faculty at that time and had shared with him the privilege of Müller's special friendship were, besides Henle and Schwann, Brücke the physiologist, Helmholtz the physicist, Du Bois Raymond, Reichert, Claparède, Lieberkühn, Troschel, Remak and Lachmann. All of them were destined to be remembered for great discoveries in medicine; yet, though many of them had better opportunities, none was to do as great work as Virchow.

While still connected with the Berlin faculty Virchow was sent as the medical member of a commission to investigate the famine among the hand-weavers in Silesia, who had been ruined by the gradual loss of customers incident to machine-weaving. What he saw in Silesia made him a socialistic sympathizer with the poorer classes during the remainder of his life. He might often have obtained special preferment and titles from the court had he cared to be a complacent courtier and let politics alone or to accept views more in accordance with courtly liking, but he remained a consistent political adherent of the Social Democratic party until the close of his career.

In the early days of his teaching at Berlin he established the well-known Archives of Pathological Anatomy, Physiology and Clinical Medicine, which still exists and has come to be known all over the world as Virchow's Archives. Some of the early numbers consisted mainly of contributions by himself, but none of them ever contained material unworthy of his future reputation. In fact, many of the early articles manifestly contain the germs of discoveries he was yet to make. Some of his most notable early work was that on the white corpuscles of the blood and their increase in leucemia and that on certain of the intestinal parasites.

His political affiliations made him persona non grata in Berlin. He got into trouble during the revolution of '48 when youthful minds all over Germany were seething, and America was benefiting by the enforced emigration of such men as Carl Schurz, the late General Sigel and our own Dr. Jacobi. Virchow's resignation as a teacher at Berlin was requested, and he was glad under the circumstances to accept the chair of pathology at the University of Würzburg in Bavaria. Here in the next seven years, between the ages of twenty-eight and thirty-five, he accomplished the greatest work of his life. His discoveries drew all eyes to the hitherto little known university, and in 1856 he was invited to return to Berlin as the full professor of pathological anatomy.

The first edition of his Cellular Pathology was published while he was at Würzburg, and proved to be the broad foundation of modern pathological progress. Before this time it had been considered that organs and tissues suffered as structures. Virchow showed that the changes produced by disease could be traced to the cells of the various organs and tissues. While an organ might be very seriously degenerated, not all of its cells were necessarily affected, and certain kinds of component cells might be spared entirely. Such terms as parenchymatous and interstitial had to be invented to represent the selective actions of inflammatory processes.

More than anything else at this time, however, Prof. Virchow's work on tumors deserves recognition. He pointed out more clearly than it had ever been done before the nature of various tumors and the distinction between those that remained benignant and those that were from the beginning malignant, or became so in the course of their development. While never a practitioner of medicine himself, Virchow's work never departed very far from the domain of clinical medicine. His Archives were noted as publishing some of the most important clinical articles in the early days, and Virchow himself accepted the editorship of a text-book of special pathology and therapy—what we should call a system of practical medicine now—that proved a popular reference work in German medical schools during many years.

The most important feature of Virchow's work in pathology in its relation to practical medicine was that it proved a counter-current to the nihilistic tendencies in therapeutics of the Vienna school of pathology. The demonstration by Rokitansky and his students of the extensive disease in various organs suggested the hopelessness of all therapeutic effort. The observations made by Virchow, however, that all cells did not suffer equally, that sometimes the more important parenchymatous cells entirely escaped, and that there were possibilities of cell multiplication, again gave heart to the therapeutists.

After Virchow's return to Berlin his interests widened so as to include nearly everything of importance concerning man. Of himself as he approached middle life he might well have said, in the words of the old Roman poet, *Homo sum; humani nihil a me alienum puto*—I am a man; nothing that is human do I count indifferent to myself. He wrote on manifold subjects and edited various journals and collections of essays. The reform of medicine, public hygiene, military sanitation, epidemics, mortality and morbidity statistics, school hygiene, the construction and management of hospitals, criminal law, forensic medicine and municipal sanitation were the special subjects of his thoughts; but he turned from these wide medical interests at times to pursue themes of ethnology, in which he was an acknowledged authority; of archeology, in which he was an original discoverer and brilliant thinker; in anthropology, of which he was one of the founders, and in various departments of sociology.

In spite of all this intellectual work, he was equal to the pursuit of the most time-consuming laboratory investigations, wherein he obtained his results not by ingenious generalizations but by patient observation, confirmed over and over again before the results were given definitely to the world. Virchow has never had to take anything back with an apology for the hastiness of his conclusions. He has always been an eminently conservative force in German medicine, resisting hasty generalizations. He was an anchor that kept the ship of medical doctrine from drifting with the gusty fads of the moment.

Virchow never ceased to be practical in the midst of all his work in the "ologies." When Germany went to war with Austria he organized the first military medical trains, and thus did much to rob war of some of its horrors. When in 1870 Germany and France were plunged into the unfortunate conflict that might so easily have been averted Virchow gave himself up entirely to the arrangement, equipment and drilling of the hospital trains that saw active service, and took sanitary charge of the immense military hospital situated just outside of Berlin. For his services he won the admiration and love of all the citizens of the capital, and his name became popularly known throughout the empire. After the war was over Virchow was placed in charge of the sanitary bureau of the growing city of Berlin. An immense and extremely difficult problem, hitherto unsolved, was before him. Berlin is situated on a plain. Two rivers, the Havel and the Spree, flow through it, but these carry very little water and would be considered as creeks in America. They are totally inadequate to carry off the sewage of so large a city, which must consequently be disposed of otherwise. Under Prof. Virchow's care the sewage farms of Berlin received such extension that in spite of the fact that the city has increased in population from less than 500,000 to more than 2,000,000 in less than 30 years, the sewage from this population has been successfully disposed of upon farms which produce enough revenue to meet the cost of its collection.

RUDOLF VIRCHOW.

Of this and the creation of the admirable water-supply system of Berlin Prof. Virchow was very proud. The records of the health of all the men employed on the sewage farms, many thousands in number, were brought to him for daily inspection. The occurrence of a few suspiciously similar cases was the signal for immediate investigation of the sanitary conditions where the cases occurred. Very few epidemics were noted. The mortality and morbidity from typhoid fever and other intestinal diseases among the men working in the sewer material was actually less for many years than among the rest of the city's population, though they were of course much more exposed. Their immunity was due to the proper enforcement of sanitary precautions, and this was Virchow's chiefest care. When nearly eighty he once confided to a correspondent of the MEDICAL NEWS that he feared that after his death there would be no one to replace him in carrying forward this work.

With all this wide range of intellectual activity, what wonder that it was a popular saying in Berlin that at Virchow's death Germany would lose not one man, but four—the physician-scientist, the politician-legislator, the director of sanitation and the anthropologist enthusiast who constantly kept up the interest in Berlin's magnificent museums. His work in archeology also deserves special mention. He went down to Hissarlik in 1879 and gave Schliemann the benefit of his experience as an anthropologist and of his knowledge of skull characteristics to aid the excavations at Troy. While in Asia Minor his interest in the natives prompted him to do some of the little regular medical practice of his life. As a consequence the natives came to reverence him almost as one from another sphere. He especially realized the importance of good water for the workmen, and knowing how easily contamination might take place, he always had the water for his own use and that of his companions brought from a distance. The natives got the idea that the spring from which water was brought at so much trouble for this great medical man from Europe must have some special medicinal virtue. A sort of tradition to this effect grew around it and for many years afterwards its waters were vaunted as a wondrous panacea for most physical ills. There is even an added bit of picturesque historical tradition to the effect that sick people were brought from a distance to its neighborhood, and that as a consequence it lost the one virtue of freedom from contamination, on account of which Virchow had recommended it during his successive visits in the region.

Virchow's description of the bones found in the graves of Koban is considered a valuable contribution to archeological anthropology. His interest secured many important gifts from the East for the Berlin museums, and his constant care for them in the midst of so many duties did not a little to keep up that intelligent interest in them which brought legislators to the realization of their educative value and awakened private generosity to a sense of its duty towards them for the generations to come.

As a legislator Virchow seemed to consider his position one of trust, in which there was placed under his care every interest of education in the country. Legislation adversely affecting university privileges met with his unfaltering opposition, while bills intended to benefit universities and widen their influence were sure of his devoted support.

Virchow was elected to the legislature of Prussia in 1862 and served continuously in it until his death. His special interest apart from educational matters was in the state finances. Prussia represents in the German empire very nearly what an important State of the Union like New York represents in our government. Virchow had a large field for his political activities, and he used his opportunities to advantage. The present system of Prussian finance, in certain ways regarded as a model, is said to be due mainly to his suggestions.

As the result of his successful legislative activity in the narrower sphere of state politics he was elected in 1880 to the German Reichstag or Imperial Parliament. He held his position as a member of this body for some 14 years, making his influence felt from the very beginning. He was not, however, a man to adhere to a party program unless he believed it to aim at what was at once best and possible.

During the earlier years of Virchow's career Bismarck was the dominant personality in German and also in Prussian politics. A clash of views between two such men was inevitable. Virchow refused all overtures looking to a compromise by which his influence against the Bismarckian policy might be lessened. He might easily have obtained recognition early in his career had he been ready to make even slight sacrifices of his opinions, but he was inflexible. When Bismarck's famous May Laws limited the liberty of education in Germany and threatened freedom of worship, Virchow was the most determined leader of the opposition to him in Prussia. He invented the word "Kulturkampf" (culture-struggle) to describe the opposition to Bismarck's efforts. The word obtained immediate acceptance and recognition. It proved a powerful weapon to prevent the accomplishment of Bismarck's autocratic designs by stamping opposition to them with the implication at least of a fight for true progress.

The breach thus made between Virchow and the great German chancellor continued to widen. From the time that Virchow became a member of the Reichstag he seems to have been constantly a thorn in Bismarck's side. The controversies between the two leaders respectively of autocracy and liberal democracy attracted the attention of the German world and have been given no little space by the different biographers of "the man of blood and iron" who ill brooked any opposition to his plans. At one time the issues between them became so bitter that Bismarck is said to have challenged Virchow to a duel. No absurder situation could well be imagined even for comic opera. While Virchow was a man of very small size, scarcely more than five feet tall and slight in frame, the German chancellor was almost a giant in build. Virchow was only a medical scientist whose genius had given him a position of influence in the legislature, while Bismarck was a prince of the empire, a hereditary nobleman with all the power of the empire behind him. Fortunately the intercession of friends prevented the contest from coming to the actual issue of arms. As the result of Bismarck's resentment Virchow was deposed from the position of Rector of the University of Berlin, to which his colleagues of the faculty had elected him. A few years later, however, this insult was amply compensated by his triumphant reelection to the position which in the eyes of the world Virchow more honored than was honored in accepting.

In the midst of all his interest in Germany, in German medicine and German politics, Virchow knew how to recognize the achievements of those of other nationalities, and was known as one of the most genial of men on social occasions in foreign lands. When invited to England he taught the English to appreciate the merits of the English medical investigator Glisson, who first described the capsule of the liver and many of its anatomical peculiarities. When invited to open the International Congress of Medicine at Rome, in 1894, he recalled to the Italians what the world owed to Morgagni, and did not hesitate to stamp him as the father of modern pathology, a distinction that many of his hearers thought should be reserved for a nineteenth century scientist in the person of Virchow himself. At the International Medical Congress of 1900 in

Paris Virchow was the guest of honor, and his cordial ways did more than anything else to smooth over any feeling there might be between French and German rivals and colleagues.

Virchow tasted many of the sweets of proper appreciation of his work. His seventieth birthday was made the occasion for the most cordial felicitations from all over the world. His eightieth birthday, celebrated only last October, was made an occasion of universal congratulation such as it has been given to few men to enjoy.

Hundreds of medical admirers sat down to banquets in his honor thousands of miles from his home and telegrams of good wishes poured in on him from all over the world. At the New York dinner the tributes to him came from the most distinguished members of the medical profession in America who could not say too much in his honor. The profession of Chicago and the West joined in a similar celebration.

Almost more than Virchow's great discoveries in medicine his life and the things it stood for remain for all time as a precious heritage for medical men. His was no narrow mind bent only on medical studies and sure that any mental declination from the straight path of medicine into other sympathetic intellectual interests must end disastrously. In spite, however, of his varied pursuits, no one took more interest than he in the professional status of the practising physician, and no one was more faithful than he in attendance on the meetings of societies that would further the favorable conditions of the practitioner's life. It was a constant source of surprise to medical visitors in Berlin to find Virchow always present and presiding at the meetings of the Berlin Medical Society, of which he was for many years the efficient president. How he found time for it is a mystery. When we consider how many lesser men find excuses early in their careers for the neglect of such duties, Virchow's position in the matter becomes all the more admirable. It may be said, of course, that the meetings of the Berlin Medical Society are apt to be of greater scientific interest than those of other cities, but if so, it is largely because of Virchow's earnest part in them.

His life might well be studied as a model by the physician who seriously desires to fulfil his obligations to himself—to do something more than merely make money. To money Virchow never seemed to give a second thought except inasmuch as it enabled him to complete his collections. The desires of his heart were fulfilled when the German government set about the erection of the Pathological Institute and Museum in Berlin and gave him the opportunity to oversee its construction and arrangement. It is a model for the world. When the new magnificent hospital in Berlin—to be named after him—is finished, he will have a worthy monument in the city which owes him so much. But Virchow's real and living monument is in the hearts of the men he trained to do great original work, and in the medical advances he originated, which have done so much and are destined to accomplish much more for the relief of human suffering and the prolongation of human life. He himself enjoyed length of days in healthy activity far beyond the lot of most men. In that his life was an illustration of the lesson that it is not work that kills, and that if a man can only rise above the petty anxieties and wearing worries of life he need not fear its shortening by application to manifold studies. Virchow's was the fullest, roundest life of our generation, and it is an index of the broadening of our culture that though it was cast in humble lines it was fully appreciated, not only by those closely in touch with it, but by all the world besides.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

TRIBUTE TO KUSSMAUL—MERCURIAL DERMATITIS—SERUM TREATMENT OF TYPHOID FEVER—AGGLUTINATION EXPERIMENTS IN TUBERCULOSIS—EXTRAGENITAL CHANCRE.

From the numerous interesting matters which the scientists brought up before the various German societies during recent meetings the following have been selected as of particular significance and interest for the readers of the Medical News.

Naunyn, at the Unterelsässischer Aerteverein, on June 21, 1902, read a tribute to Kussmaul, in which he dwelt upon the general influence and the great accomplishments of the famous clinician of Strassburg, and especially upon the marked impress he left upon his own immediate community. Those who were in contact with the personality of Kussmaul will easily understand what this implies. It appears that the aim of this famous man was to be in body and soul a physician in the highest sense, instead of striving for the individual leadership of the medical world in itself. His numerous contributions and works upon the subjects of gynecology, neurology, psychiatry and internal medicine are proof of this statement. Above all other considerations, however, it was through his capacity in the amphitheater, at the bedside and in the medical society that Kussmaul found himself in the first rank of eminent physicians. It seems that in all fields of medical activity he was almost equally successful. One need only refer to his articles on thoracentesis, on diabetic coma, on the treatment of gastrecstasis with the stomach-pump, and other numerous contributions which Fleiner has so carefully collected. Another particular in which Kussmaul was master was the ability to observe the sick and to analyze and describe the symptom complexes. Without a talent for this the clinician lacks the means of proper diagnosis. His great precision in drawing a clinical picture is one of the remarkable characteristics of his contributions to literature. He was a noted clinician and a very successful practitioner of medicine.

Hoffmann, at the Gesellschaft der Charité-Aerzte in Berlin, July 10, 1902, presented three cases suffering from mercurial dermatitis. The first was a woman who had been treated with mercury by inunction for syphilis. She broke out in an eczema-like dermatitis distributed over the whole body and characterized by an active shedding of the horny layer of the skin, particularly in the hands and feet, and by swelling of the mucous membrane of the mouth and of the lingual papillæ. His second patient was a thirteen-year-old girl with dermatitis exfoliativa who had been under treatment by inunctions with gray ointment. Dermatitis began with an active shedding of the skin and falling out of hair of the head and eyebrows. She also had rapidity of the heart's action and mercury was found in the urine. He likewise described a third case in which a similar outbreak on the skin had followed three injections of 0.01 gram of corrosive sublimate. The patient also had a scarlatina-like eruption on the skin and a high fever. In this instance the patient was afflicted with psoriasis, and had a few days previously been visited with a similar outbreak. Sometimes after a long period, and sometimes after a short one, following both internal and external use of this medicine, Hoffmann has seen these signs. For the most part they are accompanied by a shedding of the skin. As a rule, there is no albumin in the urine. Histological changes, so far as they are shown by pieces of the skin cut from the affected areas, are the following: As in all dermatitis, they are various. There is a large number of eosinophilic cells, not only in the enlarged blood vessels but also in the rete and horny layer. In the blood there is considerable increase in the number of white cells, many of which are eosinophiles.

H. Du Mesnil, at the Altonaer Aerztliche Verein, March 26, 1902, dealt with the subject of serum treatment of typhoid fever in an able paper in which he sought to establish the following points. This method of treating typhoid fever should be used only in cases where the diagnosis is absolute. For the establishment of the diagnosis he feels that all means should be used. In his series of patients he employed the Widal reaction. It gave a positive result in dilution of 1 to 80 or 1 to 100. A very simple method of obtaining the serum is to apply a Spanish-fly blister over the skin. After about 24 hours a bulla is present from which the serum may easily be taken. A still more certain means of diagnosis which he employed is that of cultivating the bacillus. The blood for this purpose he takes from the vein of the arm by a puncture of a sterile needle and mixes it in the proportions of from 1 to 1 to 1 to 5 with agar. This mixture is then put into the heating oven and kept there for 24 hours. From Pfeiffer's researches one is convinced that serum is serviceable. If into the abdominal cavity of a guinea-pig a fatal dose of typhoid bacilli is passed from a syringe, or the quantity of bacilli necessary to establish with certainty an active infection, in either case death or infection will quickly be hindered or even checked altogether. After the first injection another injection of serum is given. Often the animal will remain perfectly healthy. From this foundation Tavel has established the permanence of immunization to be from one to two years in horses, and has obtained a very active serum which will produce the Widal reaction in 1 to 10,000 dilution. With such a serum, which had been given him by the National Institute of Switzerland for the Production of Serum, this author made his experiments. At the present time he has had 5 cases of typhoid fever in the human being, and his results are as follows: After 20 c.c of serum a gradual decline of the fever took place ranging between 105.5° F. on the 21st day to 101.5° on the 25th day. In one or two of his cases he had to cease the injection treatment for various reasons, but found that his first applications of the remedy were not without effect even in these persons. The injections caused no local reaction and seemed to raise no disturbance in the general condition. After the administration of doses increasing from 10 to 40 c.c. he noticed a slight decrease in the temperature even in the first week of the disease. He also has seen in a few cases after an injection a rise in temperature, which was, however, successfully combated by another injection.

Nebelthau, at the Verein der Aertze in Halle, read a paper concerning the agglutination test for tuberculosis. He showed this phenomenon to the society by means of an emulsion of the bacilli, supplied to him by Professor von Behring, which he employed in the method recently described by Romberg. One particular feature which he desired to emphasize was that in a certain number of cases of consumption the reaction failed totally. He therefore feels that serum diagnosis is not yet sufficiently reliable in the case of tuberculosis to be placed in general use. At the present time there are so many facts about it to be investigated that it is impossible to state what its value in the future will be. In these opinions he concurs with Romberg, Koch, Fraenkel, Neisser, Dieudonné, Beck, Rabinowitsch and others.

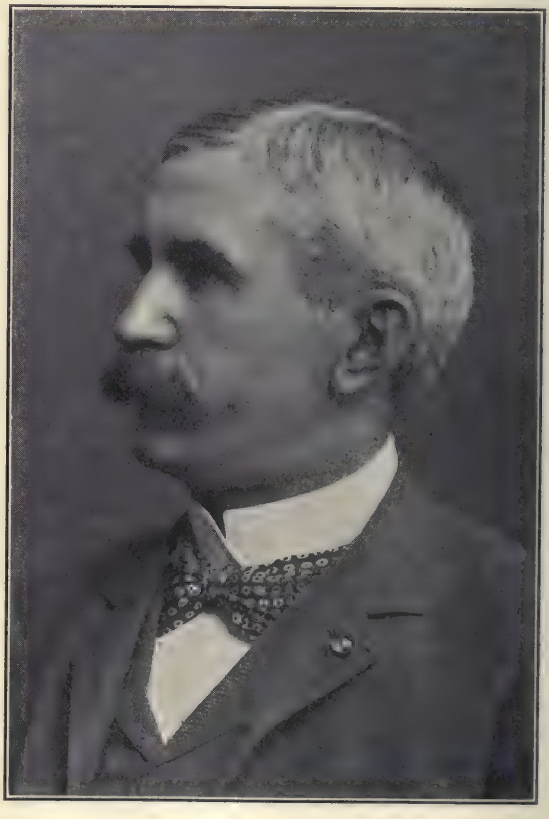
Dryer, at the Allgemeiner Aerztlicher Verein zu Köln, March 24, 1902, read a paper on extragenital chancre which was suggested by a patient of his who presented the lesion upon the cheek. On the right cheek, close to the nose and in the middle of the interval between the eye and the upper lip, the man presented the scar of an ulcerating chancre which had a characteristic induration about it. There was also a narrow thickening about this part of the right cheek that extended into the nose. This presented an erosion about the size of a bean, on the same side of the septum. Later the patient presented skin eruption and all the other symptoms of syphilis in the secondary stage, so that the diagnosis was established.

Chancre of the cheek is exceedingly rare. In this region Duncan Bulkley found but 12, after collecting the records of a very large number of them throughout Germany, Holland and Switzerland. Fournier has seen only 40 cases, while he observed 328 on the lip and 53 on the tongue. This may follow the unnatural means of sexual intercourse and such accidents as bites, razor-cuts, being spit upon and the like. Chancres of the face are more frequent in women than in men and most frequent of all in children. Fournier distinguishes two forms, the erosion chancre, and the chancre with enlargement to which this author's own case belongs. The length of time necessary for such chancre to heal varies from four to eight weeks.

SPECIAL ARTICLES.

THE NEW SURGEON-GENERAL OF THE ARMY.

General Robert M. O'Reilly succeeded General William H. Forwood as Surgeon-General of the United States Army on September 8, having been selected by the President several weeks previously in anticipation of General Forwood's statutory retirement.



SURGEON-GENERAL ROBERT M. O'REILLY.

General O'Reilly was recently in charge of the Medical Corps of the Department of California. He has just completed a tour of inspection of the various military posts between San Francisco and Washington, and is therefore possessed of a personal and practical knowledge of the condition of the most important stations of the West.

The career of General O'Reilly has been long and eventful. He has served his country in every medical capacity from that of acting cadet to Surgeon-General in command, and has been particularly distinguished in the service for the two qualities most essential to success—devotion to his profession and marked executive ability.

At the beginning of the Civil War he was a student in the Medical Department of the University of Pennsylvania, but having volunteered for active service, he was appointed an acting medical cadet, and served as such until the cessation of hostilities. He then returned to the university and resumed his interrupted medical studies. Graduated in 1866, he was appointed an assistant surgeon in the Army May 14, 1867. From that date, considering the slowness of promotion in those days, his advancement was rapid. He won his captaincy in 1870; was promoted to the rank of surgeon and major in 1886, and in 1900 to that of lieutenant-colonel in the department of the Surgeon-General.

For many years General O'Reilly was stationed at the national capital as surgeon in charge of the officers on duty in Washington, and of their families, endearing himself to them, not only by his professional skill, but also by his tact and sympathy. He was the physician to the White House during the two administrations of President Cleveland, and there are few men in medical practice, either in the service or in civil life, who have enjoyed the esteem and respect of so many prominent people.

It is, however, his marked executive ability and faithfulness to detail that will render him of signal service to the Government at this time. The standard of scientific original research has always been a high one in the Medical Corps of the Army, and General O'Reilly's genius for organization and his singular success in putting the right man into the right place will assure the furtherance of experiments now being pursued for extermination of the mosquito, as well as other sanitary investigations of the greatest importance alike to the soldier and to the profession at large.

These efforts of late have been most energetically carried on under the direction of General Forwood, who was a man in all ways adapted to the task, a close observer, a ripe scholar, possessing varied and practical knowledge, and one who by his writings alone would have left an honored name in any profession fortunate enough to have enlisted his interest.

General O'Reilly is still a young man, with his full detail of four years before him, and we wish him all success.

TOUR OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

BY GUY HINSDALE, M.D.,
OF PHILADELPHIA;
SECRETARY OF THE ASSOCIATION.

The annual meeting of the American Climatological Association was held at Los Angeles, Cal., June 9, 10 and 11, 1902, and the members in attendance made a most interesting and instructive trip through Kansas, Colorado, New Mexico, Arizona, California, and Utah. Some of the members returned via Oregon, Washington, Puget Sound and the Dominion of Canada. The arrangements provided for a private car leaving Chicago on May 27, by the Santa Fé route, via Kansas City, Lajunta and Las Vegas. As might have been expected from the presence of Climatologists and a direct representative of the Weather Bureau from Washington, the association encountered en route what was invariably termed "the most unusual weather." There were severe floods in western Kansas and eastern Colorado, which carried away several railroad bridges and en- qualities of Kansas mud and to become familiar with abled us, during 40 hours' delay, to test the tenacious the habits of the prairie dogs and all the flora and fauna of the plains. Kansas did not make a favorable impression on the party either in regard to soil or rainfall.

As we entered Colorado Pike's Peak came into view, and the interesting ranches from Nepesta and Rocky Ford, famous for its cantaloups, to Lajunta. Passing southward through New Mexico, we breakfasted at Las Vegas, where the Santa Fé road has built a beautiful hotel in the Spanish style, well appointed and under the Harvey management. At Albuquerque the new Hotel Alvarado provides unusually good accommodations. The clear, dry air and blue sky, the power of the midday sun and the relative cool of the shade, the Indians and interesting Pueblo villages made a vivid impression on the travelers. The important health stations in southern New Mexico, including, Las Vegas, Las Vegas Hotsprings and Albuquerque, are, like those in southern Arizona and the interior of California, very comfortable for six months of the year, but from May to October, they are generally abandoned for more northern stations in the table-lands having 6,000 or 7,000 feet altitude.

The Grand Cañon of the Colorado was visited June 1. The river rushes through a channel 125 miles long and has cut its way 5,700 feet below the rim of the cañon. The Bright Angel Hotel is within a few hundred feet of the end of the railway track and is close to the edge of the precipice. Mounting horses and mules, we began the descent by a narrow and hazardous trail. Rounding "Cape Horn" and making other perilous passages, we were encouraged by our guides, and felt implicit confidence in the imperturbable beasts that hung their heads over the most awful chasms imaginable.

The river is 5,720 feet below the plateau's level, and it is 1,300 feet above tide at this point. It is to be remembered also that above 10,000 feet of Permian, Mesozoic and Tertiary formations originally held a place above the plateau as it now exists. There is no other place on the globe where such a marvelous illustration of the formation of the earth's crust may be found. The period of time during which the process of erosion has been slowly at work in the production of this stupendous chasm is entirely beyond our conception. The ascent of the trail would appear impossible; there are apparently impassable barriers in all directions, but the narrow path has been constructed with skill and in such a substantial manner that no accidents have hitherto occurred. As the ascent is made one realizes still more the grandeur of the cañon, and, having less anxiety for his safety, contemplates the scene with feelings which baffle expression.

The hotel is reached in about eight hours after starting, and near it there are places where one may get a glimpse of the river and watch the changing lights and shadows as evening comes on. The scene is one of marvelous beauty, weird and mysterious, and might well have held us for many days. It is gratifying to know that a new hotel, to cost upwards of $100,000, will be erected during the winter near the rim of the cañon. The elevation of nearly 7,000 feet and the delicious air at all seasons make the vicinity of the cañon a most desirable station, especially during the summer. The sandy soil supports a growth of pines and other ever-green trees; but all water has to be brought up by train from lower levels.

ORANGE GROVES AND PALMS, RIVERSIDE. BROOKSIDE AVENUE, REDLANDS, CAL.

PASADENA AND SIERRA MADRE MOUNTAINS, CAL.

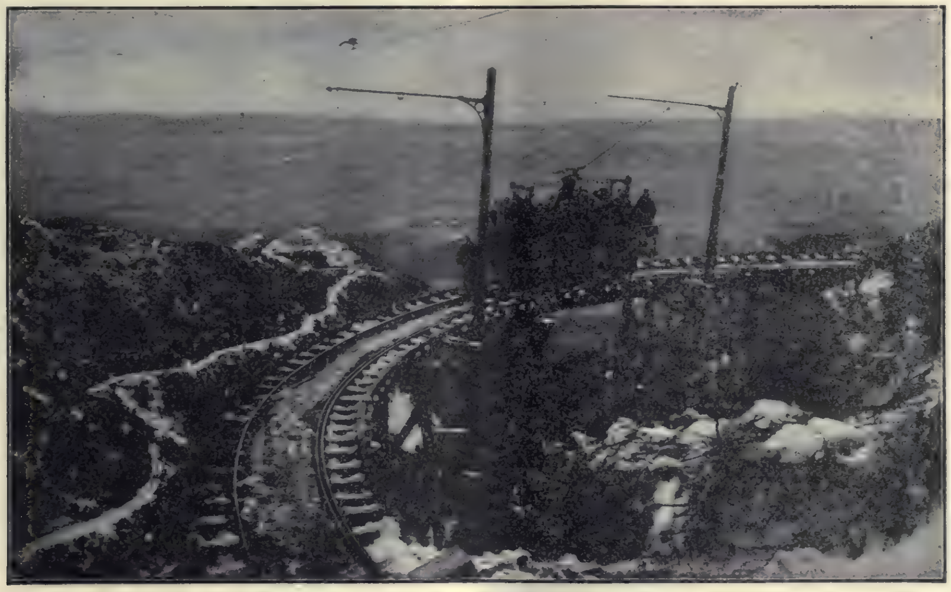
On reaching Ashfork, in Arizona, the association was welcomed to the Territory by Dr. Duffield, Dr. Foss and Dr. Plath, physicians representing the Medical Society of Arizona and the Board of Trade of Phœnix. During our visit of several hours at Prescott (altitude 5,000 feet) we were driven about the town and visited the excellent hospital conducted by the Sisters of Mercy. At Phœnix we were cordially received and handsomely entertained. The morning was devoted to driving through the city and its environs, visiting the Indian School and the capitol where we were received by the acting Governor of the Territory. The temperature at Phœnix on the day of our visit was 100° in the shade, but the heat was not exhausting, as the relative humidity was 5 per cent. After an enjoyable dinner at the Hotel Adams, tendered to the association by the physicians of Phœnix and by the Board of Trade, we listened to a description of the climate of Arizona by Mr. Wm. G. Burns, the Section Director of the U. S. Weather Bureau. The Hon. Webster Street acted as toast-master, and toasts were responded to by Drs. Bowditch, Phillips, Otis, Solly, Nammack, Cleemann, McGahan, Duffield and H. L. Taylor. After dinner the members visited the station of the Weather Bureau.

A few miles below Phœnix an opportunity was afforded to visit Tempe, a beautiful station on the Maricopa, Phœnix and Salt River Valley railroad. Dr. Jones, of Tempe, met us with conveyances and showed us the country round about. The rich soil, broad fields of alfalfa, and extensive agricultural interests made a lasting impression on the members of the party. On regaining the railroad our car was taken, through the courtesy of the Phœnix and Maricopa railroad, to Maricopa, where it was attached to the overland train of the Southern Pacific Company, to whom thanks are due for courtesies of transportation throughout California. The company sent as its representative Dr. George F. Reinhardt, of Berkeley, Cal., who met us at Lomalinda and accompanied the association throughout the State, facilitating our movements and in every way adding to the interest and usefulness of the trip.

At Lomalinda the association was welcomed by the Riverside County Medical Society, the Redlands Medical Society, and by the Board of Trade. We thoroughly enjoyed the quiet beauty of the surroundings. The orange-groves were still bearing fruit, and the beautiful gardens and quiet restfulness of the place were particularly grateful to all. We were taken to Redlands and driven through that beautiful city to Smiley Heights and Cañon Crest, where we saw the most luxuriant foliage and a paradise of flowers. Redlands is a comparatively new city, dating from 1887. It now has a population of about 6,500 and is one of the most beautiful places of residence on the Pacific Coast. Many of the handsome estates are owned by Eastern people, who visit Redlands during the winter and early spring. Smiley and England Heights are beautiful at all seasons and are kept in order by a small army of caretakers. Redlands has an almost level valley, south of the Mohave desert and between the San Bernardino, San Gorgonio and San Antonio mountain ranges. There are about 4,500 acres devoted to orange-groves, from which 2,443 carloads of fruit were shipped in 1901. The ranches are scientifically graded so as to employ irrigation, as the average rainfall is only 16.8 inches, ranging from 7.81 inches in 1898 to 25.7 inches in 1899. The groves are in fine order and are well fertilized to maintain their excellence.

A dinner was tendered to the association on the evening of June 4 by the Lomalinda Association, the Redlands Medical Society and the Board of Trade, to which a number of the physicians of Riverside, Redlands and Los Angeles were invited. The toast-master was the Rev. Dr. McIntyre, of Los Angeles, who welcomed the association to California and to its first taste of California hospitality. After referring to what the great railroads had done for California and showing that cities are now built where men find it most congenial to live, Dr. McIntyre paid a glowing tribute to the climate of California, picturing the scenery of the Yosemite and Mt. Shasta and declaring that southern California had the best "all-the-year-round" climate in the world. "You may assert," he said, "that all places have climate. No; I have known cities having no climate—only weather. Here the climate is tempered to bear a kindly demeanor towards man. You will find here something else besides. You will find a wonderful people. It seems to me that God has sifted 40 States to get the seeds to plant southern California with men." Responses were made by Dr. W. F. R. Phillips, a vice-president of the association, who gave an account of the journey from the East and spoke in appreciation of the welcome extended to the association. Other responses were made by Mr. Henry B. Ely of Redlands, Dr. McCoy of Los Angeles and Dr. S. E. Solly.

On the following day, June 5, we went to Riverside, accompanied by physicians of that city, and were driven in tally-hos, provided by the Chamber of Commerce, through Magnolia Avenue and through some of the beautiful estates. At Chemawa Park a delicious luncheon was served by the ladies of Riverside. Riverside possesses some of the oldest orange-groves in California, and the ranches have been brought to a very high state of cultivation. With ample irrigation enriching the soil, and with constant attention to the needs of the various fruit-trees, the owners of these orchards have obtained a handsome return. Five thousand carloads of oranges were shipped last year. Riverside dates from about 1870. The famous navel orange was first grown in the United States at Riverside about 10 years ago. Olives, lemons, the date-palm and other palms flourish. In this part of California, lying between the Sierra Madre, San Jacinto, San Gorgonio and other mountains, the valleys are nearly level. Where water is introduced they are easily irrigated, and the finely pulverized chocolate-colored volcanic soil and decomposed granites are wonderfully productive. Owing to the long dry season, dust becomes objectionable but on the principal avenues of all towns in southern California oil is now used to lay the dust and harden the road-bed. A large supply of oil in southern California makes this possible, and the streets are sprinkled with crude petroleum several times during the season. As the oil becomes well incorporated with the road-bed a firm and dustless road is the

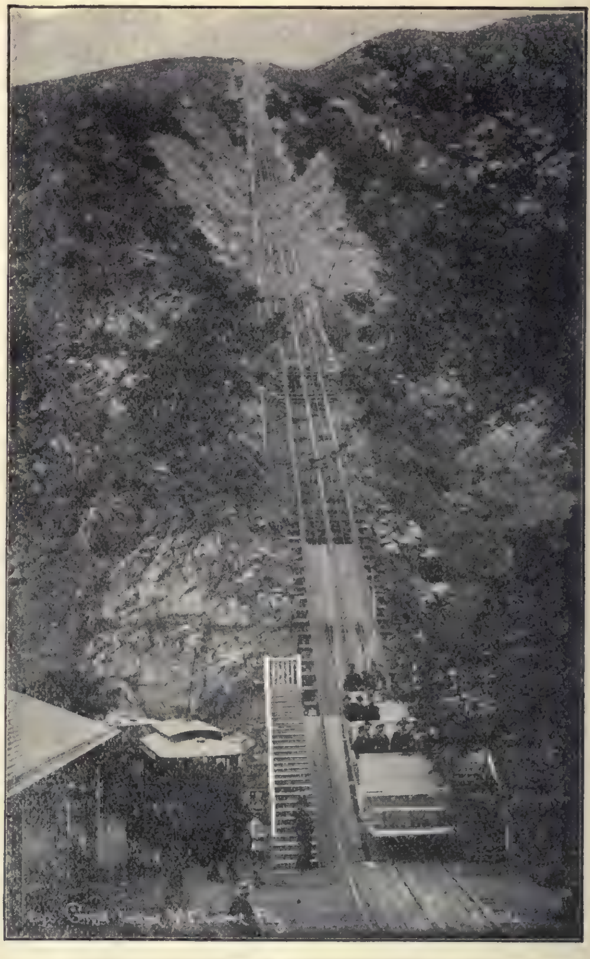

CIRCULAR BRIDGE, MT. LOWE RAILROAD, CAL.

result. The odor of the crude oil becomes less and less obnoxious. Some of the oil-fields of California extend under the sea, and at Santa Barbara wells are driven hundreds of feet from the shore, and through pipes the oil is collected.

On leaving Riverside we went to Hemet en route for Idyllwild. Hemet is on the Santa Fé railway, 35 miles southeast of Colton. We were entertained at lunch by the Hemet Land Company and by them driven to Idyllwild, a health resort in the Strawberry valley, 20 miles distant, at an elevation of 5,250 feet. The last 10 miles was up a steep mountain road. The resort is primarily for the reception of tuberculous patients, and there were 50 under treatment at the time of our visit. The establishment consists of a central building, conducted like a hotel, with a large number of cottages and tents at convenient locations. There are electric and steam plants, good water-supply and 7,000 acres of land, including the Strawberry valley. The Strawberry Valley Lodge is half a mile from the sanatorium. It is under the same general management and equipment, but less expensive. We enjoyed the hospitality of Idyllwild for two nights and a day, and had the opportunity of exploring on horseback the surrounding heights.

We reached Los Angeles June 8, and during the succeeding three days held the scientific sessions. Twenty-two papers were presented, and are to be printed in the annual volume of Transactions. The feature of the second day was the presentation of five papers on California. Prof. Alexander McAdie, of the Weather Bureau, San Francisco, contributed a paper on the climate of California in general; Dr. C. A. Sanborn, of Redlands, on the climate of the Eastern Foothills; Dr. G. E. Abbott, of Pasadena, on the climatology of the Western Foothills; Dr. W. A. Edwards, of Colorado, on Littoral California. Dr. Walter Laidley read a paper on the climatology of the Mountains of California. The annual dinner was held at the Westminster Hotel, and 60 persons participated in it. While the dinner was being held the ladies accompanying members of the association were entertained by ladies of Los Angeles with enjoyable music. A fine musical programme added to the enjoyment of the annual dinner, and a handsome illustrated souvenir, entitled "Climate; What it Means," was presented to each guest by the Los Angeles Chamber of Commerce. On the following evening Dr. and Mrs. W. Jarvis Barlow gave a reception at their residence to the association, and invited the Los Angeles Medical Society to meet the members and accompanying ladies and guests. The courtesies of the California Club were extended to all the members and accompanying guests, and this attention was highly appreciated. Drs. LeMoyne Wills, George L. Cole, Bridge, Orme and others entertained members at luncheon, and took all the members of the association in tally-hos about the city of Los Angeles and its environs. We were shown the Medical Department of the University of Southern California, the Children's Hospital, the Sisters' Hospital, the Sanatorium for the Tuberculous Poor and the California and Pacific hospitals.

MAGNOLIA AVENUE, RIVERSIDE, CAL.



GREAT INCLINE, MT. LOWE RAILROAD, CAL.

The association made an afternoon trip to Santa Monica, by courtesy of the electric road, and several of the members took their first dip in the waters of the Pacific Ocean. The strong afternoon sea-breeze created a pretty heavy surf and the temperature of the water was not over 60° F. Santa Monica is a popular seashore resort 17 miles from Los Angeles. It has two very good hotels and numerous small cottages.

An afternoon was spent in a trip to Pasadena and Mt. Lowe. The association was welcomed at Pasadena by the Board of Trade, and driven over its beautiful avenues. The private residences in Pasadena are of a high grade, many of them of great architectural beauty and with attractive grounds. The palms, the pepper-trees, the rose-hedges and beautiful lawns make this city a most desirable place of residence; but here as elsewhere in southern California, many of the houses were deserted and will not be opened until January. Pasadena is not, however, unsuited for residence throughout the entire year. The temperature in summer may reach 90° F. or over, but the relative humidity at the same time is about 40 per cent. The humidity is greater, however, than at Redlands, San Bernardino and other interior stations. The nights are always cool and blankets are indispensable. In winter the temperature rarely falls to 26° F., and the days are warm and sunny. On New-Year's day the tournament of roses is one of Pasadena's beautiful sights. We visited the new hotel Raymond and made a call at the home of Dr. Norman Bridge, a vice-president of the association. By the courtesy of the Pasadena and Mt. Lowe electric railway a trip was made to the Alpine Tavern 1000 feet from the summit. The ascent is made partly by electric and cable power and affords a fine view of Pasadena, San Rafael Heights and the San Gabriel valley. The afternoon fog near the coast prevented a clear view of the ocean. It was a beautiful trip, and revealed one of the most remarkable pieces of engineering. The elevation reached was 5,000 feet.

On June 12, the association, having finished its sessions, left via the Santa Fé road for San Diego and Coronado. Here the visiting members were welcomed by Dr. William A. Edwards and Mr. E. S. Babcock, manager of Hotel Coronado and delightfully entertained. It had been the intention of the association to hold its meeting at Coronado, but unforeseen difficulties arose which made it necessary to have the sessions at Los Angeles and visit Coronado afterward. Coronado is unquestionably the best seashore resort on the Pacific Coast, and is equally enjoyable in winter and summer. The bathing, fishing, games of water polo and other diversions render a visit to Coronado particularly delightful. Returning to Los Angeles the association made a trip to Catalina Island, remaining over night at Avalon. The island is reached by a sail of 23 miles from San Pedro. Avalon is protected from high winds and surf and is an ideal place for sailing and fishing and for studies of the marine fauna and flora. The sea-lions are always interesting. Sea-bass weighing over 400 pounds are occasionally caught at Avalon, and tuna, jew-fish, barracuda and halibut are also found in these waters.

Again returning to Los Angeles, the association visited Santa Barbara. From San Buenaventura the train followed the shore and traversed a most interesting oil district. The innumerable derricks extended to the water's edge, and at one point piers were constructed beyond the breakers so that the remarkable sight was presented of oil-wells in operation at some distance from the shore from which oil may be loaded directly into tank-steamers. The oil is said to flow more freely during flood tide, and the oil-bearing sands extend several miles beyond the shore-line. The oil has supplanted coal for locomotives in southern California, and during the dry season is used for sprinkling the highways to prevent dust. The oil is dark and heavy and has not yet been successfully refined. Its use on the roads and avenues of the larger cities is not offensive, and it produces a good road-bed and a welcome change from the inevitable dust of the arid regions. Santa Barbara is one of the most attractive cities of California. In front of it lies the Pacific Ocean with a chain of islands in the distance. These break somewhat the force of storms, and the harbor is fairly safe. Back of the city are the Santa Inez range of mountains and the Sierra de San Rafael. By the courtesy of Dr. W. H. Flint we were driven for 18 miles along the mountainside in and out of the cañons which reach upward from the foothills. We also visited the interesting Santa Barbara Mission, founded by the Franciscan fathers in 1786 and still in excellent preservation. The coastline at Santa Barbara runs almost east and west, and the protection afforded by the mountain ranges on the north gives to Santa Barbara a most advantageous position. It is a popular place for residence during the winter and spring, with numerous cottages and good hotels.

San Luis Obispo, the Sycamore Hot Sulphur Springs and Paso Robles were also visited, and on the evening of June 18 we arrived at Del Monte. The approach by way of Castroville and the vast ranches of the Salinas valley gives no suggestion of the beauties of Del Monte. This magnificent estate on which over $2,500,000 has been expended is one of the "show-places" of California. Although less than two miles from Monterey, it has no view of the bay, the hotel lying in a sheltered position well surrounded by trees and gardens. There are no end of walks, and a drive of 18 miles within the limits of the property is one of the most beautiful on the Pacific Coast. Monterey bay, the old Mission, the shores of the Pacific and the remarkable trees are among the features of this resort. Some of the party enjoyed a sail on Monterey bay. There is an atmosphere of restfulness and quiet beauty at Del Monte which makes it a desirable place for convalescents from acute disease. It is not specially suited to tuberculous cases. The party left Del Monte June 20 for Santa Cruz and visited the remarkable grove of big trees (Sequoia sempervirens). We proceeded to San Jose and made the ascent of Mt. Hamilton (elevation, 4,440 feet) by a long stage-ride. On the following day Palo Alto was visited. The Leland Stanford, Jr., University, although not in session, was inspected and the adjoining estates, including the late Senator Stanford's famous stock-farm were visited.

San Francisco was reached June 21, and the Palace Hotel was made headquarters. The visiting members of the association were received most hospitably by leading members of the profession in San Francisco and delightfully entertained at the Pacific-Union, University and Bohemian clubs. Visits were made to the U. S. Military Hospital at the Presidio, and the Sutro Baths, the Cliff House and "Chinatown." The Association for the Protection of Forests and Waters gave a luncheon to the members which was highly appreciated. We enjoyed a trip to the summit of Mt. Tamalpais on the north side of the bay, the skill of the engineers who built this remarkable road and the beauty of the prospect from the summit making a decided impression. The Pacific Ocean beyond the Golden Gate, was well seen, and San Francisco, Oakland and San Rafael were plainly visible. San Francisco has a climate of its own with very little change through every season of the year. snow and ice are never seen, and rarely is the temperature above 75° F. At the time of our visit overcoats were usually required in the afternoon, especially when riding over the hills of the city. These would be impassable if ice should form. The climate is a good one for many nervous diseases, but is rather too hard for pulmonary or bronchial affections.

On leaving San Francisco the company was somewhat divided, the majority returning eastward via the Southern Pacific Company's Ogden Line. This afforded an opportunity to make a side-trip from Truckee to Lake Tahoe. This superb lake, on the dividing line between California and Nevada, has been formed in the crater of an extinct volcano. It is 25 miles long and has an elevation of 5,000 feet. It is of remarkable beauty and well repays one for a visit. Officers of the Lake Tahoe Railway and Steamer Service invited the association to visit the lake as guests of the company. The members also spent an enjoyable day in Salt Lake City, bathing in Great Salt Lake and visiting the well-known places of interest. Glenwood Springs, Colorado Springs and Denver were also visited, and many courtesies were shown by the members of the association residing in those place. Some of the members of the association, including the secretary, went north from San Francisco by the famous Shasta Route, passing close to that magnificent snow-covered mountain. We visited Portland, Tacoma and Seattle, going thence by steamer up Puget Sound to Vancouver in British Columbia.

The first station on the Canadian Pacific railway that attracted our attention from a climatic standpoint was Kamloops. This town of about 2,000 inhabitants is in a valley of the Thompson river, 250 miles east of Vancouver. Its altitude is 1,160 feet and the air is dry and invigorating. The annual rainfall is 10 inches. It is better situated than any other place in British Columbia for the treatment of pulmonary affections, since it affords proper climatic conditions, and through the Canadian Pacific Railway service, is easy of access and well supplied. There is no special provision for the care of tuberculous patients, but it is quite likely that an institution will be established there at no distant date. Kamloops is much drier than towns on the Pacific or stations in the Rocky Mountains, but there is more wind.

Leaving the main line of the Canadian Pacific Railway at Revelstoke, we visited the Arrow Lakes. These lakes extend from Arrowhead, 28 miles below Revelstoke to Robson, a distance of about 125 miles. They are expansions of the Columbia river, and have an elevation of 1,390 feet above sea-level. The upper and lower Arrow Lakes are connected by a narrow passage through which the waters have a strong current. The shores are bold, and mountains, many of them with snow-capped peaks, rise abruptly from the lake from 6,000 to 8,600 feet above the level of the sea. The waters of the lake are too cold for bathing, owing to the melting snow, but on the eastern shore of the Upper Arrow Lake there are two hot mineral springs. The Halcyon Springs have a temperature of 126° F. Its waters are calcic saline, sulphated, sulphureted, and are piped 300 yards to the hotel near the lake-shore. There are individual baths and two plunge-baths, and the water is shipped for use. The springs are reputed to be valuable in the treatment of rheumatism, which is a common complaint among miners who are constantly exposed to wet and cold. Access is by boat 10 miles from Arrowhead. There are also the St. Leon Springs, 14 miles from Arrowhead. The waters are hot at their source, and piped about a mile to the hotel, which is near the lakeside. The waters are heated for use and employed in the treatment of rheumatism. Both of these hotels are open during the entire year, but there is at present no medical attendant nearer than Revelstoke, 38 miles distant. There is a daily boat each way. The Arrow Lakes are rarely frozen in winter. Navigation is open throughout the year. They are little known by tourists, and only within the last 10 years have they been accessible by rail. There is very little evidence of civilization here. Mountain-goats and bears are occasionally seen. Grouse are somewhat plentiful, but ducks are scarce. The lakes abound in salmon and lake-trout. Brook and rainbow trout are also found. The lakes are comparatively free from storms, although showers and high winds are frequent in summer. They are well suited for canoeing and boating and for small launches and house-boats. The Kootenai Lake has an elevation of 1,500 feet and has the same general features as the Arrow Lakes. Lake Windemere is a good location for camps. The geologic formation is of gray and reddish granite with gneisses, mica-schists and argilites.

Returning to the main line of the railway, we went to Glacier Station and climbed the Great Glacier of the Selkirks. This splendid glacier is only one of many in this region and is probably the most accessible glacier on the continent. Swiss guides are available and necessary for expeditions on the ice.

Banff was visited, and for a prolonged visit would afford the most varied opportunities for enjoyment, besides being equipped with hot sulphur baths that have valuable therapeutic qualities. The situation of the hotel and the comforts provided are all that could be required.

Proceeding eastward over 900 miles of prairie, we reached Winnipeg and passed quickly on through the Rainy Lake district to Lake Superior, thence to the beautiful Muskoka Lakes, where we inspected the Muskoka Sanatorium with its fine new building for the free treatment of tuberculosis. This impressed us most favorably in its design, its equipment, its management, and in the cordial support accorded it throughout Canada.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

THE PRACTICAL MEDICINE SERIES: PEDIATRICS AND ORTHOPEDIC SURGERY. By Gustavus P. Head, M.D. 12mo, 231 pages. The Year Book Publishers, Chicago.

A BRIEF OF NECROSCOPY AND ITS MEDICO-LEGAL RELATIONS. By Gustav Schmitt, M.D. Small 12mo, 186 pages. Funk & Wagnalls Company, New York and London.

ATLAS AND EPITOME OF ABDOMINAL HERNIAS. Dr. Georg Sultan. Edited by William B. Coley, M.D. 12mo, 277 pages. W. B. Saunders & Co., Philadelphia and London.

THE SCHOTT METHODS OF THE TREATMENT OF CHRONIC DISEASES OF THE HEART. By W. Bezly Thorne, M.D., M.R.C.P. Fourth Edition. 12mo, 137 pages. P. Blakiston's Sons & Co., Philadelphia.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Volume VII, Materia Medica and Therapeutics; Preventive Medicine; Climatology; Forensic Medicine. Edited by Gustavus P. Head, M.D., Chicago.

DER HYPNOTISMUS-HANDBUCH DER LEHRE VON DER HYPNOSE UND DER SUGGESTION, MIT BESONDERER BERÜCKSICHTIGUNG IHRER BEDEUTUNG FÜR MEDICIN UND RECHTSPFLEGE. By Dr. L. Loewenfeld. 8vo, 522 pages. J. F. Bergmann, Wiesbaden.

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ORIGINAL ARTICLES.

THE MODERN TREATMENT OF FRACTURES OF THE LOWER END OF THE RADIUS, AS INDICATED BY THE ROENTGEN RAYS.*

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THE old dictum, "*Qui bene diagnoscit, bene medebitur,*" applies preeminently to the treatment of the fracture of the carpal end of the radius, generally known as Colles's fracture. In fact the laws that govern the treatment of this much disputed fracture, and last but not least the final result, are entirely determined by a correct diagnosis. The principles of treatment are then reduced to a few points of simple common sense.

Such complete and correct diagnosis could not as a rule be made before Roentgen's great discovery. It can safely be maintained that in most cases skiagraphy has revealed conditions that were not expected and required the original diagnosis to be more or less modified.

The questions most frequently asked of a surgeon, "How do you treat Colles's fracture?" "Do you use long or short splints?" "Do you prefer the plaster-of-Paris dressing or a splint?" "Are you fond of Dumreicher's, Roser's, Schede's, Braatz's, Gordon's, Koelliker's, Moore's, Carr's, Bond's, or Middledorpf's bilateral, or of the old pistol splint of Nélaton?" "Are you in favor of immobilization or of early motion?" etc., show that the essential points are generally overlooked, fracture of the lower end of the radius being regarded by many as of a constant type, uniformly characterized by the fracture of the bone 10-30 mm. above the articulation, and followed by a silver-fork-shaped deformity of the wrist. This point of view is inadequate and erroneous.

It has been found that the anatomical aspects of the various forms of fracture of the lower end of the radius differ in fact more than those of any other fracture, and it is self-evident that such variants must greatly influence the manner of treatment.

In the first place, the question whether the fracture line is intra- or extra-articular is of great importance, because for a simple extra-articular fracture and a Y-shaped intra-articular fracture different therapeutic means must be sought. Again, the varying relations of the fracture of the radius to its fellow, the ulna, are of great practical importance.

It is but natural that our therapy should be changed and directed by fuller clinical experience and anatomical observation. In the short space of time which has elapsed since Roentgen's discovery it has been found that the anatomical aspect of the fracture of the carpal end of the radius (inaccurately called Colles's fracture) shows a number of types. It is true that the majority of cases are characterized by a breach of continuity from 10-30 mm. above the articular surface of the carpal epiphysis, which, on account of a peculiar turn of the lower fragment causes that deformity of the wrist which is compared with a fork (*displacement à la fourchette*) or with a bayonet, or with a flat Z. But besides this type, first described by Colles, there still remains a large group differing from it materially. Without undervaluing the great work of our surgical masters before the Roentgen era, and particularly commending the work of Nélaton, Velpeau, Volkmann and Koenig, we must still say that the rays furnish the most convincing proof of the necessity of modifying their interpretations of this injury. Thus, having regard to old experience as well as to information recently gained, I have tried to classify those different forms of this much disputed fracture which appear to be most characteristic and must accordingly demand different therapeutic measures; and if we bear in mind the frequency of fractures of this type and believe that they represent 25 per cent. of all fractures, the importance of a detailed diagnosis will be evident.

In classifying the different varieties of fracture of the lower end of the radius, it seems to me to be essential to distinguish: (1) Epiphyseal (chondro-epiphyseal and osteo-epiphyseal) separation; (2) fissure; (3) complete fracture (simple, without displacement); (4) complete fracture, (simple or multiple, with displacement); (5) fracture of the carpal end of the radius associated with fracture of the styloid process of the ulna; (6) fracture of the carpal end of the radius associated with fissure, fracture or dislocation of the lower end of the ulna; (7) fracture of the carpal end of the radius associated with fissure or fracture of the scaphoid bone (sometimes also with the ulnar end). All these varieties may be intra- as well as extra-articular. (8) Fracture of little bone portions (chips), generally extra-articular. (See Annals of Surgery, August, 1901).

Simple subcutaneous fractures, showing little or no displacement, often heal without, or in spite of, any treatment, as the long sin-register of quackery will demonstrate. The number of fractures not recognized as such during treatment is legion.

The first object of a rational therapy of all fractures is the consolidation of the fractured ends without any displacement and without injuring the adjacent tissues or the function of the limb. It is evident that if there is no *displacement* no *replacement* (or, better said, reposition) will be necessary. All that is then required is to protect the injured limb in its normal position. This is done by proper immobilization.

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* Read at the stated meeting of the New York Academy of Medicine, April 3, 1902.

In the great majority of cases, however, more or less displacement follows the fracture. In such an event, of course, the displaced fragments must be reduced to their normal position. After *exact reposition* has been attained, *proper fixation* in the normal position is in order. These doctrines are so simple that it seems almost unnecessary to repeat them. Yet they are frequently violated. The functional impairment following non-reduced fractures of the lower end of the radius, especially the formation of adhesions, has led a number of surgeons to enunciate the dogma that the treatment of the soft tissues is the most important part in the treatment of fracture. They claim, in other words, that because the function of the soft tissues, for instance, of the tendons, is impaired after an unreduced fracture, the soft tissues should have received more attention, instead of the displaced fragment having simply been reduced to where it belongs. Nothing, in fact, is more contrary to common sense than this dangerous maxim, which is based upon correct observation but incorrect interpretation. It should always be considered that the relations of the soft tissues to the bones are like that of the clinging vine to the sturdy oak.

Galen says that the bones give the human body form, erectness, and firmness. It is evident that an injury of the bones impairs these three fundamental factors. The most important step toward repair must thus be taken in the foundations rather than in the superimposed structures.

If there is displacement of the bone fragment undue pressure must necessarily be made upon the soft tissues; *non-reduction means persistence of pressure,* the fatal consequences of which are well known. *Reduction means the relief of pressure.* If the lower fragment is displaced upwards (compare Figs. 12 and 14) the extensors are unduly stretched as they are upheld like the strings of a violin by the bridge. Of course, the act of injury to the soft tissues cannot be undone by the mere cessation of pressure, that is, by reduction; but the influence of the injury on the soft tissues—the influence of the pressure, in fact—lasts only a short time and is insignificant after early reduction, and therefore repair is easy. This means that the main premise of adhesion—formation—is wanting. And clinical observation shows that with perfect reposition the joints as well as the sheaths of the tendons are found free, provided the immobilization has not lasted for an extraordinary length of time.

A fracture is a solution in the continuity of the bone, just as a wound is a solution in the continuity of tissues in general. The aim of modern wound treatment is union by first intention. The most important requirement for this end is, besides aseptic precautions, the thorough adaption of the wound surfaces.

No surgeon would expect agglutination if there be displacement, diastasis or overlapping of the wound margins. The same principle applies to the treatment of the margins of the bone fragments. It is true that manual coaptation is a little more difficult than suturing; still, under the guidance of the Roentgen rays it can almost always be accomplished. Before their advent it was usually the final result alone which told of the success or failure of treatment. That result was then a *fait accompli,* and the time for proper correction had passed.

Now, with our Roentgen light mentor we can tell from the very beginning what the result will be. If the "Roentgen mirror" reflects perfect coaptation of the fragments underneath the dressing, the final result must be good. There will be hardly any reaction; no exudation will form around the agglutinating surfaces, and consequently there will be no adhesions. Even in those cases, in which considerable displacement, or comminution, or both, have injured the soft tissues, little reaction follows within them, if reduction be thorough. And if reduction is impossible, the Roentgen rays point to those fragments which are to be removed shortly after the injury. This is preferable to waiting for months, exhausting all mechanical means, and finally arriving at the conclusion that the deforming fragments had better be removed. What I and many others have in former years often regarded as a callus was nothing but a projecting piece of bone-fragment in a displaced position. It may, perhaps, be a pardonable policy to adhere to this most euphonic term in the presence of the inquisitive and criticizing patient, who has a dangerous desire of learning the cause of his gibbous wrist. But a scientific forum cannot ignore the occasional failure to reduce.

The regular scar of a well-united wound must be the model of our therapeutic efforts. Direct union is to be striven for. What is termed ensheathing callus-formation means union by second intention; and this is certainly undesirable as long as union *per priman* can be well accomplished. Ensheathing callus is the compensating effort of nature to overcome the unreduced deformity and to bridge over the hiatus made by irregular adaptation.

In order to accomplish exact reposition, the degree and the direction of the displacement, as it is shown by the Roentgen rays, must be first considered. It is true that an experienced surgeon will often *guess* right, but he will never *know,* except by his infallible adjunct, the Roentgen rays. The only safe method is the self-control by the Roentgen rays. It may appear to be unjust to demand of the struggling practitioner that he should supply himself with an expensive Roentgen apparatus, but after all there will be no other choice. The public is cruel, and the patient's interest concentrates itself almost entirely in his own welfare. These principles apply to most other fractures situated near a joint. Contusion and distortion are sometimes taken for fissure and often for non-displaced fracture, and vice versa, as the symptoms—local pain and enlargement of the wrist—are common to all. Crepitus and false motion are absent, and this is not surprising.

As said above, if there is no displacement, no effort of reposition should be made. How absurd then to subject the patient, as is often done, to painful procedures. In simple fissure union may be perfect under any, or even in spite of any, form of treatment. If the surgeon, led by anatomical knowledge, does practically the same as the quack does on account of his ignorance, namely, leave the healing process to nature, the same good result may finally be obtained. The scientific treatment of fissure or non-displaced fracture in which portions of the periosteum still maintain slight cohesion of the fragments (especially at the dorsal surface) will not alter any of its mechanism, but it will at least have the value of a greater or less comfort for the patient, and in cases of this kind we must be warned against scientific nihilism. Such comfort is obtained by encircling the wrist by a bracelet of moss-board. This appliance sufficiently immobilizes the wrist and at the same time permits enough motion to counteract the formation of adhesions in the sheaths of the tendons. The patient carries his hand in a sling in such a manner that the ulnar margin rests on it. Thus free motion of the hand is permitted. The patient is told to move his fingers as in playing the piano; and I find it very useful to advise him to grasp marbles of moderate size and to roll them around in the palm of the hand. Patients are generally willing to keep these marbles in their pockets and play with them while reading or conversing or walking around. If motion is thus constantly kept up massage treatment as well as forcible motion can be dispensed with, and recovery is perfect in four weeks, or sometimes even in three.

Most of these fractures being extra-articular, articular effusion is generally absent. If the fracture line extend into the joint, displacement usually follows. The oblique fracture of the lower end of the radius has, as far as my knowledge goes, not yet been described. I have observed it in adults only. It looks as if the fracture line were longitudinal at the articular surfaces, the upper fragment appearing as a triangular piece of bone. The apex of this piece begins about an inch from the wrist, and the base carries part of the joint surfaces, so that the lower as well as the upper fragment shows articular surfaces. If there is no displacement, the treatment is the same as in diaphyseal separation, or complete fracture without tendency to displacement. In the triangular type, however, in view of the intra-articular inversion it is preferable to apply a plaster-of-Paris dressing immediately after the injury is sustained.

But whenever displacement of the fragment takes place, accurate reposition is the condition *sine quâ non*.

Then the modus operandi of reduction depends upon the type of displacement. In the majority of cases the lower fragment is directed upwards, so that there is dorsal prominence, the joint not being concerned. In such cases (generally called typical Colles' fracture) the shape of the deformed wrist resembles that of a bayonet or a fork. The Roentgen rays have shown, however, that the upward displacement as a rule is associated with sideward displacement, generally in an outward direction, causing radial inversion and consequently slight shortening of the radial axis. In such cases the clinical diagnosis is not difficult. The lower fragment pushes towards the dorsum, at which a prominence is seen, near the wrist, corresponding to a groove at the site of the upper end of the fragment. The upper (diaphyseal) fragment presses against the flexors, producing a prominence further upward. The greater the prominence, the shorter is the radial axis. Crepitus is, even in these typical cases, often absent. In a number of cases, however, the direction of the displacement is found to be towards the ulna, even if the diaphysis is not pronated.

There are also a number of cases observed by myself as well as by others, where the lower fragment is turned backward around the transverse axis. Sometimes the sagittal axis of the lower fragment is turned around. The oblique type (triangular fragment), in which the joint surface is split, has been spoken of to above. A rarer form is the detachment of the posterior border of the joint surface. Roberts also observed forward displacement of the fragments. Most of these forms can only be diagnosticated by the Roentgen rays.

By being upwardly dislodged, the lower fragment, in the typical cases, is brought into slight supination, while the diaphysis is in decided pronation. The epiphysis being in very close connection with the ulna, the latter is slightly pushed toward the ulna if the ligamentous connection between the radial fragment and the ulna remains intact. This phenomenon finds its conspicuous clinical expression in the lateral prominence of the lower end of the ulna.

Wherever displacement demands reposition the assistance of one or two persons is desirable who should make counter-extension while the surgeon replaces the displaced fragment. After the exact situation of the fragments is ascertained by the fluoroscope the surgeon knows at once how to replace it in its former and normal position. This is done by making manipulations, either in the way of pressing sideward and turning the fragment, or by putting the wrist at a proper angle and thus correcting the abnormal direction. It is needless to say that upward displacement requires pressure from above downward; outward displacement, pressure from within, and inward displacement pressure from without.

The oblique triangular type generally requires downward and inward pressure. In Fig. 10, however, which shows this triangular type associated with spiral fractures of the ulna, the triangular fragment is turned upward and inward, so that downward and outward pressure is required for reduction.

The following method I found most useful in the majority of these cases: The hand of the patient is grasped as in a firm handshake by the left hand of the surgeon, while the patient's thumb is held by the right hand of the surgeon so that the thumb of the latter presses the fragment downward, while the surgeon's index finger presses it inward at the same time. If the direction of the displacement is towards the ulna the surgeon grasps the patient's hand, including the thumb, with his own right hand, and pushes the fragment outward with his left thumb while he supports the flexor aspect with the rest of his hand. During these manipulations counter-extension must be exerted at the lower end of the arm. (Fig. 1.) If it appears to be impossible to reduce the fragment in this manner, anesthesia must be employed. This maneuver is sometimes facilitated by placing a book or a piece of wood underneath the ulna at the edge of a table.

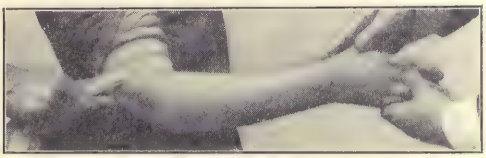

Fig. 1. Reduction in semipronation, while the surgeon's right thumb is pulling and his index-finger is pressing downward.

I have never failed to reduce the fragments in fractures of this type since the Roentgen rays became such a reliable guide. Even in impacted fractures I could always disentangle the interlocked fragments.

If there is a simultaneous injury of the lower end of the ulna showing displacement, special care must be taken to press the fragment into its normal place.

In multiple fractures, even in the much dreaded Y-shaped variety, the articular arch of the radius may sometimes be restored by repeated efforts of reposition, controlled and corrected by the Roentgen rays.

After reposition is accomplished a fixed dressing must be employed for the purpose of retaining the fragments in their proper positions. This is not always easy. I find that no dressing accomplishes the purpose of retaining the fragments better than plaster of Paris, since it adapts itself to the contours of the wrist in any desired shape or direction, and can be adapted to the individuality of each case.

Before the Roentgen era the fear of ischemia and gangrene prevented me from using it immediately after the injury. Now that the premises of ischemia are known to be wanting as soon as the pressure of displaced fragments is removed, such fear is uncalled for. So, while in former years I applied splints first and resorted to the plaster-of-Paris dressing four to seven days afterwards, I now apply the plaster dressing immediately after reduction, resorting to the splint treatment a week or two later, as the case may require. If the protruding fragment is not reduced, gangrene of the overlying soft tissues may be produced by any kind of dressing. A short time ago I presented two illustrations showing extensive gangrene at the dorsum as well as on the palm, which was caused by well-padded splints. No effort at reduction had been made. Such results are of grave consequence for the patient as well as for the surgeon.

If the direction of the displacement is slightly upwards, or upward and outward, a plaster-of-Paris dressing embracing the thumb, is applied (Fig. 2). I find that the direction of the thumb influences that of the fragment to a great extent. The hand is moderately flexed at the same time. If gentle pressure with the index finger (Fig. 1) does not suffice to keep the fragment down, it must be pressed down by a signet, around which the bandages are wound. After the splint is fastened with a bandage, the fluoroscope shows whether the fragment is in a desirable position. A dorsopalmar as well as a lateral examination must be made, because an anteroposterior view only shows whether there is any upward displacement left.

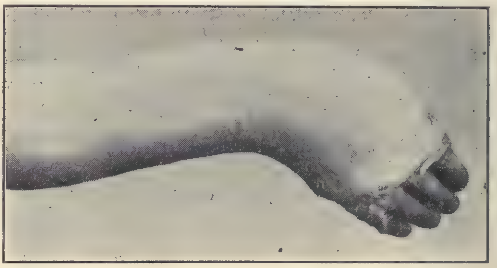

Fig. 2. Circular plaster-of-Paris dressing in superabduction.

If the fluoroscope shows imperfect adaption, the bandage must be removed and reposition done over again. Under such circumstances the fragment may be better retained if the thumb is pulled in an outward direction while the hand is shifted to the opposite side. A plaster-of-Paris dressing, applied in this position, resembles the old pistol splint of Nélaton. Of course the outward bending can be increased *ad libitum.* A surgeon must not lose patience if his efforts fail several times. By the fluoroscopic guidance he will at last surely find the proper angle, or in other words the most suitable position and shape of the dressing or splint for his individual case. One mistake often suggests the best mode of correction. (Figs. 7 and 8.)

If the displaced fragment is directed towards the ulna, in which case there is generally an outward bending of the ulna present, immobilization is kept up best by turning the hand inwards —Fig. 3. After a week the dressing must be removed and if the edema has disappeared, a plaster-of-Paris splint, moulded after the same principles, may be substituted, which can be taken off temporarily, so that massage treatment may be employed if necessary. The essential part of these splints is the encircling of the thumb, which guarantees absolute immobilization. (Figs. 4 and 5.)

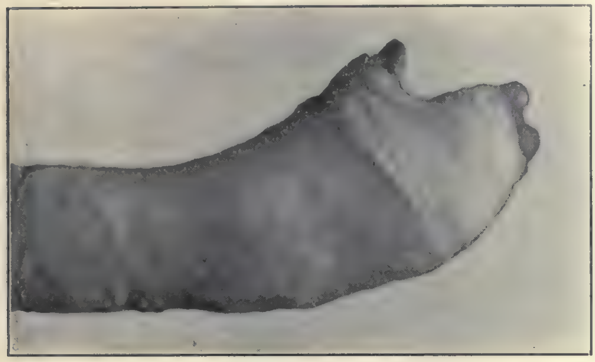

Fig. 3. Circular plaster-of-Paris dressing in adduction.

In the multiple T- or Y-shaped variety there are generally two diverging fragments, one being shifted towards the ulna and the other outwardly. By pressing these fragments asunder, so to say, the diaphysis is made to push itself forward so that it touches the scaphoid bone, the arm consequently being shortened. Here the circular plaster-of-Paris dressing in abduction is indicated. After that fragment, which is outwardly displaced, is pressed inward, a pad of adhesive plaster is placed above it. The fragment which is displaced toward the ulna, must be shifted in the direction of the radius. To prevent slipping back a rubber drainage tube is placed between it and the ulna at the dorsal aspect. By gentle pressure it is squeezed down into the interosseous space and kept *in situ* by strips of narrow adhesive plaster, which do not entirely surround the arm.

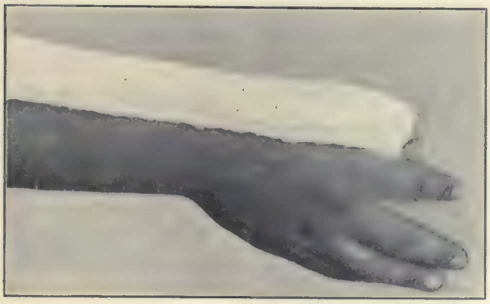

Fig. 4. Thumb-splint, hand slightly flexed, for fracture without displacement.

Since this type is intra-articular, it is understood that there is always a well-marked extravasation which may even extend over the sheaths of the tendons, so that palpation is rendered difficult. There massage is best employed to remove the extravasation. Naturally, its presence renders a detailed diagnosis impossible except by the rays.

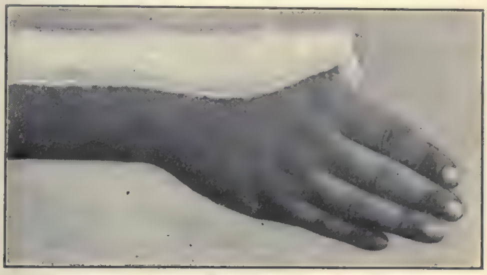

Fig. 5. Thumb-splint, hand slightly abducted, for fracture with displacement.

Among all the different varieties of fracture of the lower end of the radius these intra-articular injuries are most serious. Only continuous control, by the aid of the Roentgen rays, of the proper position of the fragments, together with repeated correction, will give a fair result.

In the case of considerable comminution, a perfect *restitutio in integrum* can not be promised. A skiagraph taken at the earliest possible moment is then a valuable document for the surgeon, since it proves the great difficulty of perfect reposition of the splinters.

Fig. 6. Axial turning of lower fragment.

In the case of a woman of twenty-five years the lower fragment was turned towards the ulna and also around its axis (Fig. 6). It goes without saying that this extraordinary degree of displacement showed considerable deformity. Reposition was accomplished without anesthesia, the wrist being immobilized in superabduction. The skiagraph (Fig. 7) taken through the plaster-of-Paris dressing, showed that the abduction was overdone, therefore another dressing was applied in moderate abduction. This position showed the fragments in better coaptation, but there was a tendency of the ulnar side of the fragment to project upwards, partially filling up the interosseous space. Elastic pressure, recommended by me in the treatment of metacarpal as well as metatarsal fracture, also, proved to be useful in this case. A small piece of rubber drainage-tube (the diameter of a large pencil) was placed alongside the interosseous space and fastened there with a small strip of adhesive plaster. Now the skiagraph (Fig. 8) showed perfect adaptation. That it had spoken truthfully was evident from the absence of any reaction—which should have been expected in view of the enormous degree of displacement and by the speedy and blameless recovery.

I confess freely that I have often thought I had reduced a displaced fragment thoroughly because palpation seemed to give thorough satisfaction. But I was sometimes not little surprised that the Roentgen plate showed me most impolitely how ill I had succeeded in my alleged reposition. In a former publication on the subject I have advised as a method of self-education the drawing of an anatomical sketch of one's silent diagnosis and then comparing it with the skiagraph. Thus we learn on one hand that we cannot always depend even on a highly cultivated palpatory talent, and on the other hand we are taught to improve the power of judgment by comparing our sketch with the lifelike picture as it is given to us by the Roentgen rays. Thus we

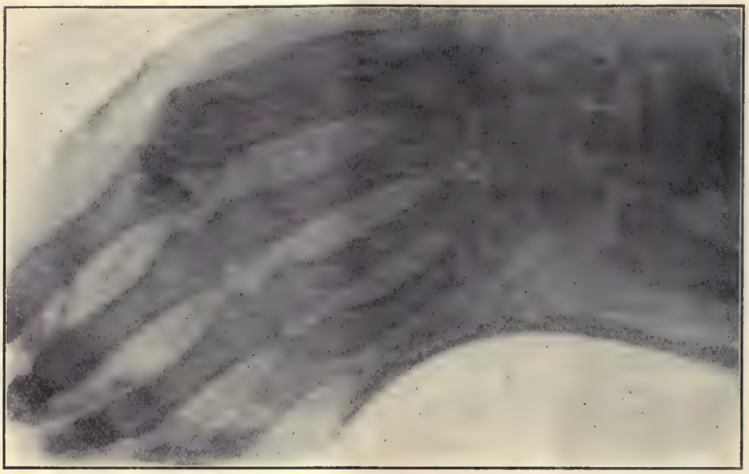

Fig. 7. Reposition of axial displacement overdone as shown by skiagraph taken through plaster-of-Paris dressing.

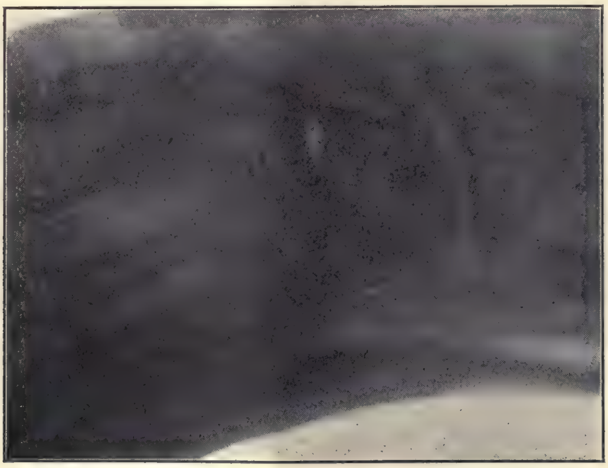

Fig. 8. Case, illustrated by Figs. 6 and 7, correctly reduced as shown by skiagraph taken through plaster-of-Paris dressing.

perfect our clinical experience, for which the Roentgen rays should by no means simply be substituted.

There is no doubt that good results can be obtained by other means of immobilization, provided they are preceded by proper reposition controlled by the Roentgen light.

The main principles of treatment are the same for the other types of fracture of the lower end of the radius. There are, however, several modifications according to their different anatomy.

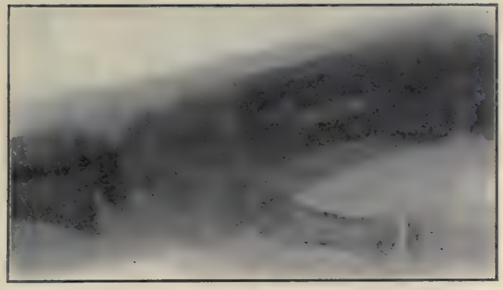

Fig. 9. Chondro-epiphyseal separation, showing upward displacement.

If in chrondro-epiphyseal separation no sideward displacement exists, the antero-posterior exposure shows nothing abnormal while a side-view may disclose considerable upward displacement as is shown by Fig. 9, for instance, the anterior view of which revealed apparently normal relations. This is best treated by gentle downward pressure without using counter-extension and the application of a plaster-of-Paris dressing in extension. If a lateral view shows any sideward displacement under the dressing, a pad of adhesive plaster is attached to the skin above the lower fragment and the dressing reapplied.

In osteo-epiphyseal separation, where the fracture line is not limited to the epiphyseal cartilage, but extends to the diaphysis, a greater tendency to displacement is observed. The principles of treatment are the same as that of the complete fracture described above, since the tendencies to the various forms of displacement are the same.

Fracture of the lower end of the radius associated with fracture of the styloid process of the ulna is rather frequent. My own statistics show that the styloid process is involved in 26 per cent. of the cases. This co-injury was discovered long before Roentgen by Nélaton and Velpeau and studied especially in this country by Pilcher, Roberts, Freeman, Corson, Thomas, Don, Haughton and Colton. I recommend the circular plaster-of-Paris dressing in moderate adduction for this type. Sometimes it is possible to grasp the process and push it back into its proper place. This is easy, provided the process is displaced outward, but in case of inward displacement reposition is much more difficult. I have found it useful to press this fragment outward by pushing the dull end of a pencil between the process and the radius and keeping it there until the dressing is completed, the bandages being wound around the pencil. A small piece of rubber tube may also be placed there.

A small amount of pressure often suffices to push the fragment into position, while after the lapse of weeks the inversion of the process may cause intense pain on any effort of bending the wrist, so that removal by chisel may have to be considered.

In fractures of the lower end of the radius associated with dislocation of the ulna, the lower radial fragment generally rides on the diaphysis, the latter protruding at the flexor aspect and the former at the dorsum. The ulna end then overlaps the carpus. It must be a considerable degree of violence which produces this rare injury. In such cases the arm is shortened at least an inch. (Fig. 18.) Reduction is easier than retention after reduction. Sometimes an extension-splint will answer, but in the majority of cases joining of the radial fragments is better done at once, and the patient should be thoroughly informed of the grave nature of the injury.

Fracture of the lower end of the radius associated with fissure of the neck of the ulna is treated after the same principles as the complete fracture of the lower end of the radius. This applies also to fracture without displacement. But if there be displacement—generally outward bending of the lower fragment, sometimes in spiral shape, as in Fig. 10—after reposition a plaster-of-Paris splint in moderate adduction is applied. A pad of adhesive plaster is also placed at the outer aspect of the ulna. Should there be any inversion, a small rubber-drain must be placed in the interosseous space.

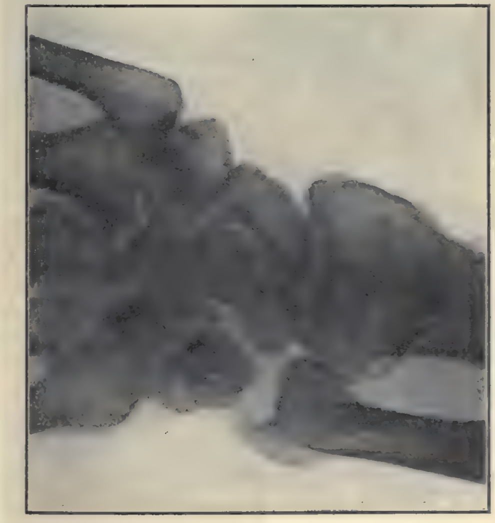

Fig. 10. Oblique intra-articular fracture of radius combined with spiral-shaped fracture of the lower ulnar end.

Another co-injury, the transverse fracture of the scaphoid bone, deserves thorough attention.

Fortunately as a rule but little or no displacement is present, but the character of the injury being intra-articular it is appreciated that there is considerable intra-articular effusion, which is largely responsible for the great tendency to adhesion-formation in these cases. The treatment is practically the same as that for the complete fracture described above, with the difference that motion must begin early. It is therefore advisable to remove the circular dressing somewhat earlier than in the other types and to substitute a plaster-of-Paris splint—the same shape. This splint may be taken off temporarily every day so that gentle massage can be commenced.

Fracture of little bone portions (chips), generally of the extra-articular type, are often confounded with contusion or distortion. In such cases massage treatment is manifestly inappropriate; the treatment should be carried on after the principles of the treatment of fractures, viz., immobilization. This should be kept up for the first week after the injury at least and after the little fragments are redressed.

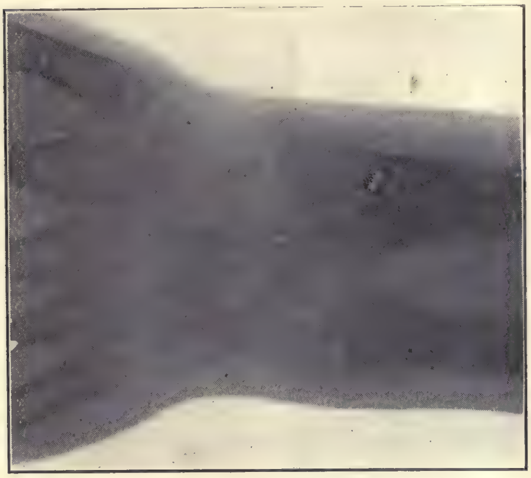

Fig. 11. Fracture of lower end of radius, showing no displacement in dorso-palmar exposure. (Compare Fig. 12.)

Such chips are sometimes no longer than the head of a pin, and if they are separated from the dorsal or palmar surface of the radius may not be at all conspicuous on the skiagraphic plate, while a lateral exposure will show them.

If the massage treatment so commendable in contusion is used in these cases, it is not surprising that the patient becomes rebellious. It is indeed not at all indifferent whether a simple bloody effusion or keen-edged bone-fragments are kneaded. If the principles of immediate reduction are adhered to, the "gibbous wrist" will cease to be counted among the inevitable inventory of surgical clinics. Still, I am afraid, this is still a pious wish as long as there are surgeons who imagine that by virtue of their own especially developed palpatory talent they can judge the details of any fracture with the aid of the Roentgen rays. Some are willing to use them in *obscure* cases, but they do not realize that the cases which they regard as simple, would appear in a different light when skiagraphed. The paradox may be justified here, that, if they would see the fracture type in its proper light, it would appear obscure to them. Up to that time the question of correcting the deformities will still have to be considered.

Fig. 12. Case illustrated by Fig. 11, showing considerable upward displacement in lateral exposure.

Two to three weeks after the injury correction is possible by simple refracture, as is evident by Figs. 11, 12 and 13. Fig. 13 shows the result of the first correction through the plaster-of-Paris dressing. After the lapse of four to five weeks the only remedy consists in osteotomy in the fracture line. Fig. 14 shows malunion eight weeks after the injury. Perfect restitution is only possible by osteotomy in this case. There may be little discomfort but bending of the wrist is limited. Sometimes a small wedge must then be exsected from the ulna in order to permit perfect reposition. Such operations must be performed under the strictest aseptic precautions; tearing of the wound edges must be avoided and the wound itself should come in contact with the hands of the surgeon as little as possible since the work can be done with the instruments. The immediate result of the operation is studied by the Roentgen rays and the position modified if neces-

Fig. 13. Displacement, as shown by Fig. 12, corrected. Irradiated through plaster-of-Paris dressing.

sary. Fig. 15 shows the wrist of a lady of fifty years, one week after the upward and sideward displacement was corrected by linear osteotomy. Nine weeks had elapsed since the injury. The result was perfect. In multiple fractures (Fig. 16) those shortened fragments which are an obstacle to motion are best removed. The Roentgen rays often indicate at the time of the injury whether there may be a chance for restoration or not. In the latter event it is preferable to operate as soon as the bloody effusion is absorbed, since nothing can be gained by procrastination under such circumstances. Similar principles apply to the treatment of isolated bone-chips. In a case of osteo-epiphyseal separation, caused by great violence, the simultaneous dislocation of the pisiform bone was detected. Reposition being insufficient, the removal was advised. (Fig. 17.)

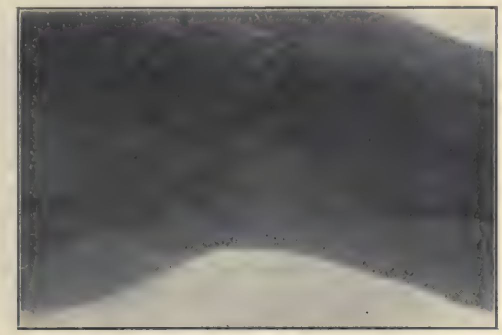

Fig. 14. Upward displacement causing considerable functional disturbance eight weeks after the injury (lateral view).

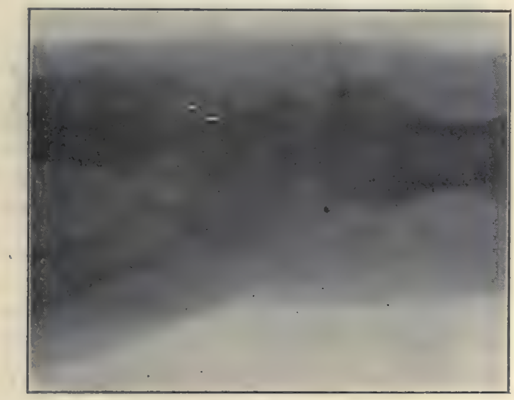

Fig. 15. Result of osteotomy for upward and lateral displacement one week after operation.

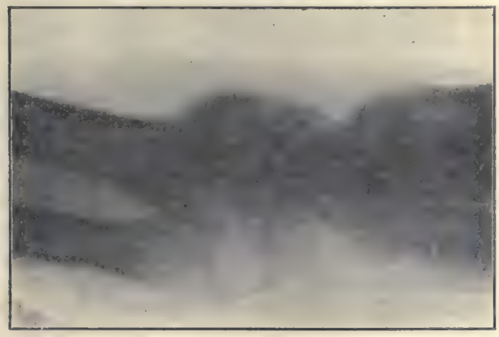

Fig. 16. Multiple fracture of lower end of radius, followed by overlapping of lower fragments and causing side and forward displacement of ulna.

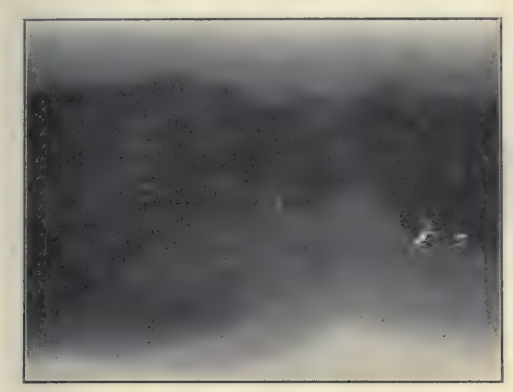

Fig. 17. Osteo-epiphyseal separation of radius associated with dislocation of the pisiform.

In fracture of the lower end of the radius, associated with dislocation of the ulna, if the radial fragments have become united while overlapping each other osteotomy must also be resorted to when more than three weeks have elapsed since the injury. After the fragments are separated, muscular contraction may prevent their reposition, so that the diaphyseal fragment must be shortened in proportion. The protruding ulnar portion must be restored. Fig. 19 shows a case of this kind. Aged persons suffering from deformities of this kind may be exempted. If they suffer while motion is made, immobilization is best kept up with a moss bracelet until ankylosis of the wrist takes place. Fig. 18 for instance illustrates the case of a woman of sixty-five years of age whose skiagraph, taken three months after the injury, revealed inward and upward displacement of the radial fragment, associated with spiral oblique fracture of the lower

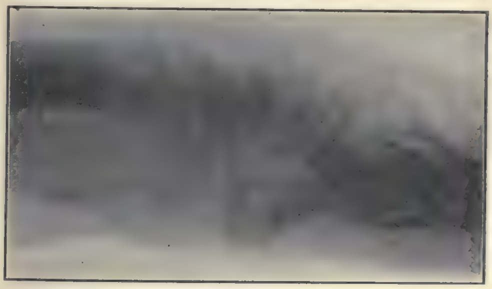

Fig. 18. Oblique fracture of lower end of radius associated with dislocation of ulna.

end of the ulna. The upper ends of the ulnar fragments projected into the interosseous space and made motion extremely painful. As long as skiagraphy had not been resorted to, the diagnosis was adhesions in the sheaths of the tendons and so the joint was forcibly bent. As I am informed intense reaction followed each of these manipulations. In such a case only two possibilities should be considered, viz., either osteotomy or immobilization, the latter being preferable for a person of this age. If perfect restitution should be demanded, it would be obtained only by chiselling off the protruding edges.

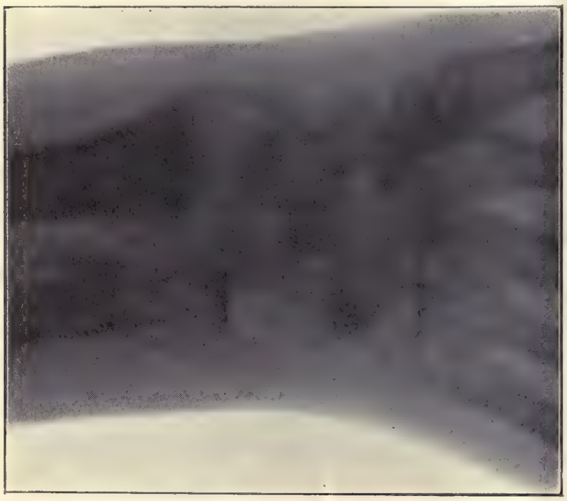

Fig. 19. Upward and inward displacement of radial fragment, associated with oblique fracture of lower end of ulna.

PHOTOTHERAPEUTIC APPARATUS.

BY MILTON FRANKLIN, M.D.,
OF NEW YORK.

While all wave-lengths of the spectrum which produce light, and even the infra-red rays, induce chemical change under favorable conditions, it is well known that the blue, violet and ultraviolet are the most powerful in the order mentioned, ascending.* A phototherapeutic machine must therefore produce the maximum quantity of these rays. The other rays, while they have some chemical activity, produce so much heat that their utilization in concentrated form would result in serious burning, hence they must be carefully excluded. The energy produced by the machine should be carefully collected, over as great an angle as possible, by suitable collecting lenses, and after being freed from the injurious heat-rays should be as carefully focussed upon the desired area of the patient with a condenser. These conditions being all met, it is immaterial in which order they are effected; for instance, the collection and condensation of the rays may occur at once, or successively, and the heat absorption subsequently. A phototherapeutic apparatus should therefore consist essentially of three parts: an energy-producing arrangement, a collecting and condensing system and a cooling or heat-absorbing device.

The sun has long since been discarded as a direct source of energy in phototherapy. The reasons for this are numerous and weighty, but we shall mention only the following as a few of the most important: (1) The sun cannot be relied upon for continuous service, except in a very few places on this earth. (2) The solar spectrum is so full of absorption bands that some of its rays are very small in quantity. (3) The atmosphere of this earth is a tremendous absorber of the ultraviolet rays. (4) The apparatus necessary to utilize the sun's rays is very cumbersome, and except in the open air is often quite useless. (5) The energy of the electric arc at a short distance is proportionally greater than that of the sun.

The Light Source.—The Voltaic arc is to-day preëminently the greatest light-producing apparatus at our command. A consideration of its intensity and a glance at its spectrum will at once demonstrate that where tremendous energy and intense chemical activity are required it is so far ahead of other lights as to render them practically useless in comparison. The ordinary arc lamp produces a remarkably even spectrum, with a good strong ultraviolet region, and the energy produced is proportional to the square of the current employed. Lamps of the incandescent enclosed pattern are absolutely useless, as having a comparatively cold filament; its spectrum ceases at a low region. Besides this, the energy consumed in these lamps is never more than about three ampères, and that in only very rare cases—lamps of 100 candle-power. The energy consumed in the average 16-candle-power lamp is about one-half ampère, and even if a number of these lamps were combined to utilize more current the purpose would not be served, as the spectrum from any number of lamps would not be higher, though more intense, than from one, and the greater the number of lamps the larger would be the area over which the sources of light would be distributed, making the loss by radiation and absorption in air and the difficulty of collection so considerable as to render questionable the advantages of multiplication. Besides this there is the fatal condition that the light is inclosed in a glass globe. I shall mention the subject of glass later.

A careful study of the spectra of various elements has shown that magnesium, potassium and iron have spectra in the blue, violet and ultraviolet regions, and that by combining salts of these metals with the carbon in the ordinary electrodes of the arc it is possible to obtain a spectrum comprising more of the chemical rays than under any other circumstances. Fig. 1 shows the comparative spectra of ordinary carbon and iron, and the new electrodes containing these substances. Machines with iron electrodes have been tried here and abroad, but the impossibility of maintaining the arc for a period of more than one minute or so renders this arrangement impracticable. The great heating of this lamp is another point against it. Cooled iron electrodes have been suggested, but so far it has been impossible to produce an arc with a capacity of more than three ampères, and the results have been unsatisfactory. Besides, the lamps are complicated and expensive.

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* Gottheil and Franklin, American Therapist, June, 1902.

The Collecting and Condensing Apparatus.—Glass of the various kinds at present known is, with one exception, fatal to the usefulness of any machine whose ultimate object is the production and transmission of chemical rays. Long ago it was discovered that the spectrum from the reflecting diffraction-grating and that from rock-crystal prisms possessed a powerfully actinic region, invisible and beyond the violet, whose existence had never been suspected in the days of glass prismatic spectra. This region is the ultraviolet, and in it are found the most powerful chemical effects. Every variety of glass manufactured until quite recently has been absolutely impervious to the greater proportion of the ultraviolet, and pervious in so small a degree to the other regions, excepting the yellow and the green, that it might be called yellow and green glass. The whitest specimens came under this classification, and the only known substance which would transmit what was called a full spectrum was rock-crystal. As rock-crystal has rarely been known to yield discs of greater diameter than three inches, and as it is impossible to obtain lenses of this size commercially, or more than occasionally, the problem of finding a suitable lens wherewith to condense the rays has been well-nigh insoluble. The finest specimens of optical glass have been tried, but when examined spectroscopically they not only showed an enormous absorption in all regions except the yellow, but also evinced phototherapeutically an unmistakable inefficiency, even with the employment of the largest arcs of as high a capacity as 100 ampères. The problem has been solved by the production of a glass flux which not only transmits the blue, violet and ultraviolet rays, but actually extinguishes so great a proportion of the yellow, orange, red and infrared as to yield a comparatively cool light.

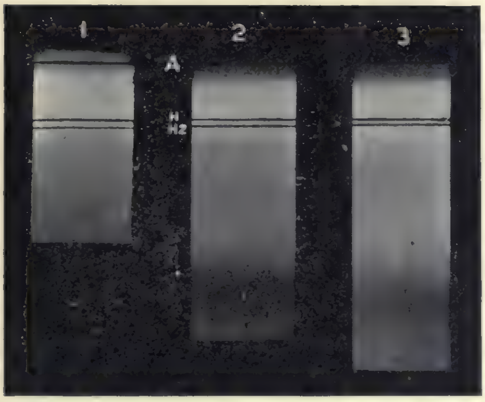

FIG. 1.

1. Spectrum from ordinary carbon electrodes.
2. Spectrum from new chemical electrodes.
3. Spectrum from iron electrodes.

The A. and H. lines drawn to show their positions.

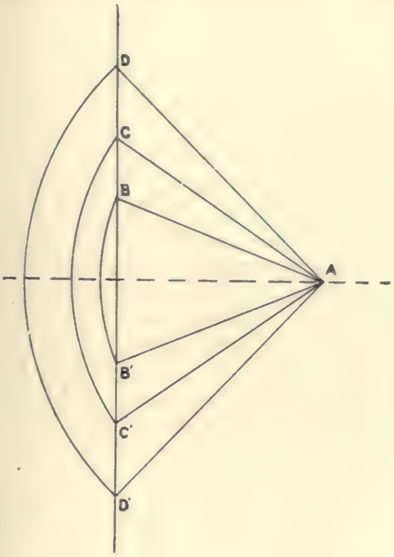

FIG. 2

The collecting lens of a phototherapeutic apparatus should have a focal length which should be amply sufficient to prevent the heat of the lamp from damaging the lens. The lamp is always placed at the principal focus of the lens, which insures the transmission of parallel rays, and for a given focal length the volume of light trans-

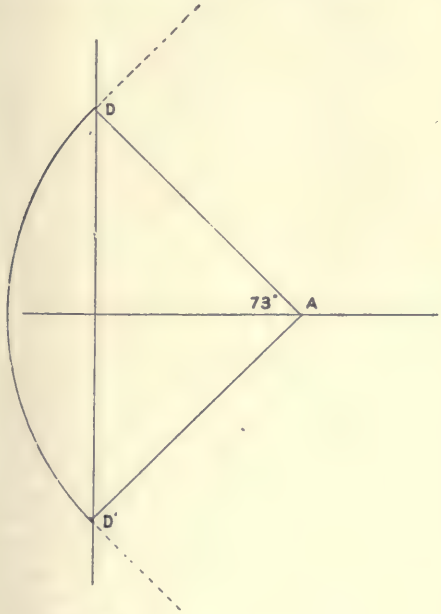

FIG. 3

mitted will depend on the diameter of the lens within certain limits. Fig. 2 makes this statement somewhat plainer. Here A is the source of light, and BB′, CC′ and DD′ are lenses of the same focal length with different diameters. Fig. 3 explains the limit above which the diameter of the lens should not be increased. There is a minimal distance at which the arc must be placed to prevent the heat from cracking or otherwise injuring the lens, and this is chosen for the focal length. As the diameter increases, the angle at A, Fig. 2, increases and upon this depends the volume of light utilized. When the angle D′ A D, Fig. 3, reaches a certain degree (depending upon the refractive index of the lens-substance), called the *critical angle,* the light ceases to enter the lens and total reflection takes place. This angle limits the angle at A, and it has been found that with rock-crystal and the new pervious glass, placing the arc as near the lens as safety will permit, the greatest obtainable angle at A is approximately 73°.

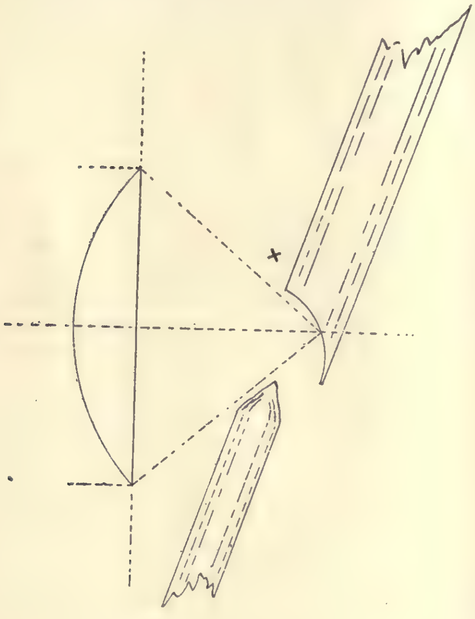

FIG. 4

The arc should be so arranged that the crater of the positive carbon, whence emanates the greater proportion of the light, will shine directly into the lens. A reference to Fig. 4 will explain this. And the lamp is arranged so that the center of the crater is in the optical axis and at the principal focus of the collecting lens. By this arrangement it will be seen that there emanate from the lens parallel rays which may be subjected to the cooling process or condensed by the condensing lens and subsequently cooled.

It will be seen from what has been said that the lenses should be made of rock-crystal or some equally diaphanous substance; that the interposition of ordinary glass into the course of the light would prove fatal to the efficiency of the apparatus; that the source of light should be at a distance from the lens which bears a ratio to the diameter, insuring as great a numerical aperture as the refractive index of the medium will permit without passing the critical angle, and that this distance should coincide with the focal length of the lens. There is reflection from the lens surface at any angle, but any increase in the diameter of the lens beyond the point of total reflection would be useless. In some forms of apparatus now on the market, the angle is increased by shortening the distance from the light to its destination, the patient, and dispensing with collecting and condensing lenses. While this has in a measure cheapened the apparatus, it leaves the machine with several disadvantages which render it very inefficient. In the first place the greatest obtainable angle by this method is approximately 40°, and this means a ratio of numerical aperture to an angle of 73° of about 35:60, or slightly more than one-half. Secondly, the limit of energy that can be used in such a lamp is near eight ampères; and remembering that the energy produced is proportional to the square of the current strength, we see that it bears a ratio to a lamp of, say, 80 ampères, of about 64:6400. Even were it possible to obtain the same angle as obtainable with large condensing lenses, the great difference in energy would render them comparativly weak. Furthermore, machines of this type have been found wanting in practical efficiency.

The Cooling Apparatus.—The problem of absorbing the heat-rays from the aggregate energy of the electric arc has been attacked from various points, and, though it is of the utmost importance, it has offered the least resistance to solution of any of the problems in phototherapeutic machinery. For a long time certain operators have been in the habit of using blue glass to effect this end, their idea being to absorb all of the heat-rays and to transmit the chemical rays. This statement is open to some question, as the advocates of blue glass have spoken entirely of blue light, and we do not know whether or not they realized that the violet and ultraviolet regions played the most important part. We know that the action of the blue rays is quite insignificant as compared with that of the violent and ultraviolet. and that it is the latter which are potent in exerting chemical action on organic compounds. Now, that the employment of blue glass is fundamentally erroneous may be readily seen by a glance at the accompanying illustration. Here we have a continuous spectrum from the electric arc lamp with chemical electrodes, and one from the same source, but having traversed a plate of blue glass taken from one of the machines now upon the market. It will be seen at once that not only does the blue glass absorb the greater portion of the infra-red and red, but also all of the ultraviolet, and nearly all, if not all, of the violet; and not only is this true, but an enormous proportion of the blue itself is also absorbed.

Machines in which the iron electrodes are cooled are limited to such insignificant dimensions and capacity that they are hardly to be considered, two or three ampères being the limit. Technical difficulties have also been encountered which render these machines complicated, expensive and very troublesome to maintain in order.

The successful arrangements all consist of a cell containing water, which has been found to absorb heat-rays greatly and at the same time to transmit chemical rays in almost undiminished quantity. Small thicknesses of water, up to about 20 inches, transmit the chemical rays almost completely, and so greatly diminish the heat-rays that the light is practically cold. The greatest difficulty with this method of cooling has been to find a container whose sides will not absorb the actinic rays. The water has been placed in a tube with the lenses forming the ends, but contraction and expansion under the action of heat, which induces leaking, have rendered this method impracticable, except in small machines having lenses of four inches diameter or less. Now that glass can be obtained which will transmit chemical rays, the problem is solved by making a cell somewhat like an aquarium, and having only two opposite sides of glass or of rock-crystal, in very small sizes. Provision should be made in such an apparatus for evaporation, which greatly aids in keeping the water cool, and also, when the machine is to be used for long periods, for a continuous circulation of the water. From time to time various dyestuffs have been added to the water in the hope that they would absorb more of the heat-rays, but every substance so far tried has absorbed too much of the chemical rays to be tolerated. The safest way is to increase the quantity of water. By this means the ratio of heat-rays absorbed to those of chemical character is greater than by any other.

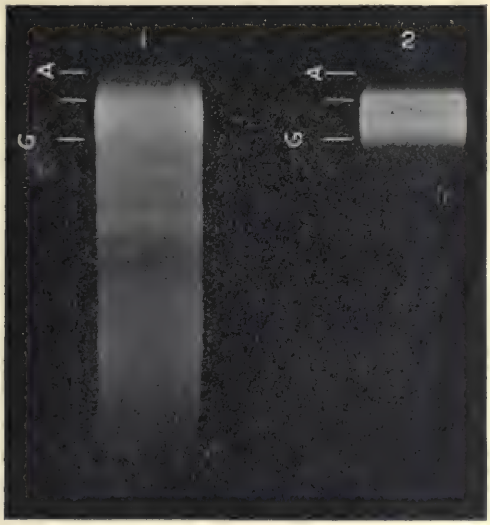

FIG. 5.
1. Spectrum of chemical carbon.
2. Absorption spectrum of blue glass.

General Considerations.—Machines of the reflecting type have been tried, but are beset with so many detracting features that they have proven well-nigh impossible. Several disadvantages may be mentioned. Where glass reflectors are used the light must pass through them twice before reaching the object. The cost of producing an optically perfect reflector is prohibitive, and ordinary spherical surfaces do not adequately focus the light. The most serious objection, however, lies in the fact that the two ends of the spectrum are focussed in identically the same plane, so that the heat-rays can never be properly isolated from the chemical rays, except by the interposition of a sufficiently great quantity of water to interfere with the transmission of the chemical rays as well as the heat-rays. In the case of a refracting machine where an uncorrected system of lenses is used, the dispersion of focus is sufficiently great to permit of putting the patient directly in the chemical focus and at some distance from the focus of the few heat-rays still outstanding after cooling. Fig. 6 explains this. Here A is light, and B and R are respectively the foci of the blue and red regions. At the blue focal point the light appears a bluish white with a circular spectrum consisting of concentric bands of color surrounding the center and having the red at the outside. If the patient be now placed at a point a little nearer the lens, the center of the light will appear dark with concentric surrounding bands as before. This dark region is the ultraviolet and is invisible.

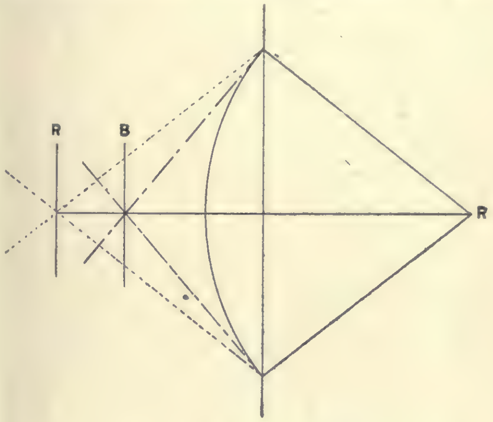

FIG. 6. — — — — Blue
-.-.-.-. Red
R| Red Focus.
B| Blue Focus.

Ice has been proposed to absorb the heat-rays, and where slabs of it can be obtained they will prove of value as compresses upon the skin.

Mechanical construction is a matter of minor importance, but the machine should be simple and unlikely to get out of order. The movable parts should be finely adjusted and balanced, and so arranged that the point of light can be directed at any spot it is desired to treat. Great steadiness should be assured, and strong set screws for every motion will prove an advantage. The machine should be fire-proof.

Conclusions.—To sum up, I should say that a phototherapeutic apparatus, to be really serviceable, should fulfill the following conditions:

1. It should be supplied with light by artificial means.
2. The lamp should be as powerful as the circumstances will permit, as no arrangement of lenses or reflectors will coax power out of a feeble lamp.
3. The lamp should be an electric arc using chemically prepared electrodes calculated to produce a spectrum powerful in the ultraviolet.
4. All lamps of the incandescent principle, of whatever design, are to be avoided.
5. Condensing and collecting lenses should be as large as the nature of things will permit, and should be made of rock-crystal or of some medium equally diaphanous to the chemical rays.
6. The cooling apparatus should consist of a layer of water containing no other substance and sufficiently thick to absorb the greater proportion of the heat-rays. It should be enclosed in some kind of a vessel which will not interfere with the passage of the chemical rays.
7. The machine should be mounted in such a way as to enable the operator to adjust and turn it in any direction with the utmost degree of precision.

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THE INFLUENCE OF THE ROENTGEN RAY UPON THE DIFFERENT VARIETIES OF SARCOMA.*

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WHILE the Roentgen rays have been used for some time in the treatment of superficial epithelial tumors, very few data are available as to their effect upon sarcomatous tumors, only three or four cases having been thus far recorded. The following series of ten cases recently treated at the General Memorial Hospital, and in private practice, together with four other cases which had been referred to other men for the X-ray treatment, are here briefly discussed.

In this series of cases the round-celled type of tumor predominates, eleven being round-celled, two spindle-celled, and one a recurrent osteosarcoma in which, however, no microscopical examination had been made. One of the cases was a five times recurrent melanotic sarcoma of the femoral and iliac glands, of the round-celled type.

Site of Growth.—In two cases the tumor originated in the neck (lympho-sarcoma); in two in the parotid (round-celled); in one in the femur; in two in the superior maxilla; in two in the muscles of the thigh; in one in the mastoid portion of the temporal bone; in one, in the pectoral and axillary region; in one in back (fascial).

Personal Results.

Case I.—Very extensive round-celled sarcoma of the neck, encircling the entire neck from mastoid to clavicle on left side and from mastoid process on right side downwards, involving the whole pectoral region with a large mass in axilla, with marked pressure on trachea, causing distressing dyspnea. Under four months' treatment with the X-ray (no other treatment) the tumors of neck entirely disappeared, only a very small nodule remaining in axilla. The patient recovered her usual health and was discharged from the hospital July 8, 1902.

Case II.—Round-celled sarcoma of femur, involving two-thirds of shaft. Amputation advised but refused. X-ray treatment given for three and a half months, four times a week. Tumor decreased in size two inches. General health improved; weight increased. Within the last week the patient has developed signs pointing to metastases in the lungs. (July 15, 1902: The thigh has continued to improve but the signs in lungs remain, though there is no increase.)

Case III.—Recurrent, round-celled sarcoma of pectoral region with very extensive axillary involvement. Three months' treatment with the mixed toxins of erysipelas and bacillus prodigiosus. Marked decrease in size (at least two-thirds) from necrosis of tumor tissue and absorption. Three months' treatment with the toxins, plus X-rays. (July 1, 1902: Tumor has entirely disappeared and patient has returned to his home.)

Case IV.—Round-celled sarcoma of thigh (muscle and fascia), recurrent and of very rapid growth. Three weeks' treatment with the toxins; no improvement. Three weeks' treatment with the X-ray; no effect on pain or on rapidity of growth. Treatment abandoned.

Case V.—Round-celled sarcoma of parotid, recurrent, of very rapid growth. Toxins given for three weeks; no effect. Ligature of external carotid artery and X-ray treatment for two weeks. Growth apparently not influenced. Pain slightly decreased. Death two weeks later. Entire course of disease, five months.

Case VI.—Five times recurrent, round-celled melanotic sarcoma of femoral and iliac glands. (Primary tumor in skin of ankle.) X-ray treatment, eighteen exposures. Decrease in size of tumor; less pain; improvement in general condition. Still under treatment. (July 15, 1902: General condition growing worse.)

Case VII.—Spindle-celled sarcoma of superior maxilla, recurrent, inoperable. Treated for three months with the mixed toxins with very great decrease in size, the growth having nearly disappeared. The tumor then increased in size and was no longer influenced by the toxins. X-ray treatment used for six weeks; slight decrease in pain at first, but later neither pain nor growth influenced by the rays. Treatment abandoned.

Case VIII.—Small round-celled sarcoma of gracilis muscle and inguinal and iliac glands. Three operations followed by rapid recurrence. The mixed toxins, and finally living cultures of streptococcus were injected for several weeks.

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* Abstract of the paper read before the American Surgical Association at Albany, N. Y., June 5, 1902.

Growth was inhibited, but not checked. Recurrent tumor in muscle of thigh treated with X-ray for three and a half months, eighty exposures being given. Slight decrease in size at first, but growth not entirely checked. No return in groin or iliac fossa. Tumor slowly increased in size and was removed on June 3, 1902. Microscopical examination of specimen showed slight increase in fibrous tissue over that found in earlier specimens. (July 17, 1902: The patient had three weeks' treatment with the X-rays and mixed toxins, after the operation on June 3. August 1: At present there is no evidence of a return of the disease and nothing can be felt in groin or iliac fossa, from which locality it was found impossible to remove all of the tumor at the operation in November, 1901.)

Case IX.—Small round-celled sarcoma of back (fascial) recurrent. The patient has had but twelve treatments and it is too early to state the probable result. The growth is evidently not increasing in size. (July 17, 1902: The X-ray treatment has been kept up three times a week, and at present the growth has entirely disappeared.)

Case X.—Very extensive, round-celled sarcoma of parotid, involving entire side of face and extending behind the ear. Six weeks' treatment with the X-ray. Pain diminished; marked necrosis of tumor and considerable decrease in size. Patient is still under treatment.

All of the patients were treated with a 12-inch coil (Willyoung) and with fairly high tubes, the usual distance being 10 inches, and the time of exposure varying from eight to 15 minutes.

The histories of four other patients, formerly under my care—all totally inoperable, but treated by other men—are of the greatest interest in connection with the foregoing cases.

Case I.—Small round-celled sarcoma of the neck, six times recurrent. Toxin treatment during May and June, 1901, with ligature of external carotid. Very slight effect upon the growth of tumor. Treatment abandoned and case regarded as hopeless. X-ray treatment (static machine) by Dr. E. R. Fiske of Brooklyn, December, 1901; six weeks. Entire disappearance of growth. Patient exhibited by Dr. Coley at the New York Academy of Medicine, March, 1902, with the following history:

G. F. H., seventy years of age, admitted to the General Memorial Hospital. Family history negative. About ten years ago a lump was first noticed on the left side of the neck. Nine years ago this was removed at the New York Hospital. The tumor recurred one year later in the scar and grew much larger. The patient has had four subsequent operations within the last seven years. One tumor was removed from the right side of the neck, the others recurring in the region of the cicatrix of the original growth on the left side and behind the ear.

Physical examination on May 13, 1901, shows a tumor the size of an orange occupying the left mastoid region. The tumor is very vascular and semifluctuating. There is glandular involvement behind the jaw on the right side; also a growth the size of a small orange in the right femoral region. There is a hard, freely movable glandular tumor in the right axilla. The patient was treated with the mixed toxins of erysipelas and bacillus prodigiosus, 13 injections being given between May 13 and June 5, the highest temperature reached being 102° F. On June 5 I tied the external carotid artery on the left side, under ether anesthesia, using chromicized tendon for the ligature. The wound healed by primary union and the patient then left the hospital, but returned July 16 for another course of the toxin treatment and remained until July 27, eleven days. At first there was some slight improvement following the injections of the mixed toxins, but later on there seemed to be very little, if any, influence from the treatment. The patient seemed to become rather tired of hospital life and was discouraged. He returned home on July 27, the tumor at that time being about the same size as when he entered the hospital, the base occupying the mastoid region and extending down to the neck, pushing the ear forward. It was not attached to the bone, but was absolutely inoperable and, as I believed, hopeless.

On December 22, 1901, the patient was treated by Dr. E. R. Fiske of Brooklyn with the X-rays. The patient states that for some time he had been trying to find a physician or surgeon to give him X-ray treatment, but had failed until Dr. Fiske took him in charge, offering to give him two weeks' trial, but holding out very little hope as to the result. A static machine was used and an exposure of ten minutes each day was made for two weeks, when the treatment was continued for two weeks longer, the exposures being made for fifteen minutes. At the end of four weeks' time the exposures were lengthened to twenty minutes. In all, the patient had six weeks' treatment. His condition at the time of the beginning of the treatment was as follows: On the left side of the neck, just behind the ear and extending downward, was a large tumor, fully the size of two fists, pushing the ear far forward. There was also in the right axillary region a tumor the size of a goose-egg. Almost immediate improvement was noticed after the beginning of the treatment and the mass rapidly diminished in size. At the end of six weeks it had entirely disappeared. The patient states that at the end of from three to four weeks he noticed a softening of the tumor in the right axilla, although no exposures were made in any other region except the neck. This softening continued and the tumor gradually disappeared until February 20, 1902, when it could scarcely be felt.

This case is certainly one of the most remarkable of its kind yet recorded, showing the beneficial influence of the X-ray upon sarcoma. The repeated recurrences, together with the numerous microscopical examinations, place the diagnosis absolutely beyond a doubt. Dr. Fiske is certainly to be congratulated on the remarkable result. I have carefully gone over the pathological reports of the specimens of the New York Hospital, and have also examined some of the slides with Dr. George Biggs, the pathologist. There can be no doubt of the diagnosis.

The following are pathological records from the New York Hospital:

February 21, 1892, Specimen No. 2201, T. No. 2: G. F. H., aged sixty years, has had a tumor on the left side of the neck, posterior to the scalenus anticus muscle, for three years and four months. Of slow growth at first, the tumor has grown rapidly during the last three months. No glands are involved. Operation February 20, 1892. The specimen is an oval tumor, 7x4½ centimeters; no capsule; on surface the voluntary muscle fibers are seen invaded by the tumor tissue. Line of incision has gone through the tumor tissue at several points. Microscopically, the tumor is a typical round-celled sarcoma with small amount of fibrous tissue struma, apparently derived from tissues in which the growth originated.

October 24, 1893, Specimen No. 2926: Tumor the size of a hen's egg in left side of neck; freely movable. Microscopical examination shows this growth to be simple adenitis.

September 6, 1896: The patient has had three operations since 1892—the first on February 20, 1892; the second one year later in the region of the old cicatrix; the third in 1894, this time a tumor being removed from behind the right ear. For four or five months the patient had noticed a swelling in the left side of the neck just below the ear near the scar of the first incision. The tumor grew gradually and was painless. Operation September 6, 1896. The specimen consisted of two masses, 8x5x3 centimeters and 2½x2½x2. Both tumors were entirely encapsulated. On section both tumors proved to be of grayish color and to have the gross appearance of sarcoma. Microscopically the tumors are found to be small, round-celled sarcoma. I merely wish to place this on record as one of the earliest and most striking cases of sarcoma successfully treated with the X-ray, and to add that the full credit of this remarkable success belongs to Dr. Fiske, who carried out the treatment and who kindly permitted me to show the patient before the society.

Case II.—Spindle-celled sarcoma of abdominal wall, involving almost entire abdominal wall. (Tumor, when X-ray treatment was begun, size of eight months' pregnant uterus.) Toxin treatment had been given for ten months, with great benefit at first; later no effect on growth. Referred to Dr. Clarence Skinner of New Haven, in January, 1902. Patient has been treated three times a week since by Dr. Skinner with static machine. Examination, two weeks ago, showed the patient much improved in health but there was little change in the size of the tumor. Still under treatment. (June 20, 1902: Patient's general condition is getting worse; she is losing weight. Recovery doubtful.)

Case III.—Round-celled sarcoma of superior maxilla, recurrent, with extensive involvement of face, nose and orbit. Toxins were tried for four months with little effect. Referred to Dr. W. B. Snow for X-ray treatment, January, 1902. Treatments have been given with static machine three to four times a week since. Very great improvement in local and general condition. Still under treatment. (July 9, 1902: Examination to-day shows that as a result of very extensive sloughing and absorption the tumor has decreased to a small fraction of its original size.)

Case IV.—Recurrent osteosarcoma of side of head, mastoid region and parotid, entirely encircling ear. Toxin treatment at intervals for one year. Growth inhibited but not checked. Patient's general condition very bad. Referred to Dr. W. J. Morton, January, 1902, for X-ray treatment. Has been treated four times a week up to the present time. Almost complete disappearance of tumor and improvement in general health. Excruciating pain, which required one-half grain morphine every two hours, nearly ceased after a week's treatment. (June 16: There has been no apparent increase in the size of the tumor, but the patient's general condition is very bad as a result of an extensive cellulitis of the neck which has recently developed. With incision and drainage this disappeared, and the patient has since continued to improve.)

Conclusions—I am conscious that the present series of cases is too small and the time of observation too short to justify one in drawing any dogmatic conclusions as to the permanent therapeutic value of the Roentgen ray in sarcoma. Still, I believe, we are warranted in stating:

(1.) That the results in the cases thus far treated prove that the Roentgen ray has a remarkable inhibitory action upon the growth of all forms of malignant disease and that this is especially true of sarcoma.

(2.) That this action in many cases of even far-advanced and inoperable malignant disease may result in the total disappearance of the tumors, often without any breaking down of the tissues, the new growth being apparently absorbed.

(3.) Whether the patients have been cured, or the disease has been merely arrested, to reappear at some future date, is a question that time alone can decide.

(4.) Recent observations and experiments upon the various forms of carcinoma and sarcoma prove that an agent supposed to be of value only in a very limited class of superficial epitheliomas promises to be of as great or even greater value in practically every variety of cancer.

(5.) While at present there is little evidence to show that deep-seated tumors in the abdomen and pelvis can be cured or benefited by the Roentgen ray, there is still some reason to hope that with improved apparatus or with greater knowledge and skill in using the apparatus that we now have, even these cases may be benefited.

(6.) The Roentgen ray has a very marked influence upon the pain of nearly all types of malignant tumors, causing entire relief in the majority of cases.

THE PRESENT STATUS OF CANCER: ITS ETIOLOGY AND PATHOLOGY—THE VALUE OF LABORATORY RESEARCH.[1]

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Although the chosen topic is of a more or less technical character, it is not my desire to permit of the presentation of exaggerated claims pertaining to recent bacteriological researches as regards the cause of malignant disease. We must admit as yet our shortcomings in the department of original research and laboratory work. With the additional facilities gradually obtaining, however, through the creation and endowment of laboratories, the American will in a short space of time be the peer of any. The search for the causes of disease has naturally led more directly to prevention than to cure. Especially is it due to the development of embryology and comparative anatomy, along with pathology, that our views of the nature of disease have become so much more accurate. Modern pathology and bacteriology are the foundations of the progressive and aggressive surgery of to-day, the latter being attended with gradually decreasing suffering and trial, and the shadows growing more and more dim from day to day. The perfection of the microscope has made possible the former, while the discovery of anesthesia, antisepsis and asepsis has been the means of marked advancement in the latter. It is by means of the high-powered oil immersion lens, with which most of us are familiar, that the science of bacteriology has been evolved and the problems of infectious diseases solved. As a means of diagnosis, however, the microscope is but an aid to clinical symptoms and observation. Bacteriology, a world in itself, is the most imposing and impressive department of medical biology. Cultivation and staining are its main factors; and if, in years to come, more and more of the germs of disease are recognized, it will be due to the perfection of improved methods for coloring and making visible these formerly invisible entities.

The experiments of Louis Pasteur, proving that fermentation and putrefaction or decay were associated with micro-organisms, prompted other investigators to attempt to demonstrate the close relationship of micro-organisms to disease. Thus appreciating the work of Pasteur, Joseph Lister made practical application of the theory in regard to chemical changes taking place in fluids during the process of putrefaction and applied them to the processes of repair in wounds. The brilliant results attained by him in 1867, while surgeon to the Glasgow Royal Infirmary, showing the intimate relationship of micro-organisms to wound infection, thereby developing a new era in surgery and in the surgical treatment of wounds, needs no elaboration by me.

This epoch-making bacteriological discovery has given a past to and well nigh eliminated such surgical complications as erysipelas, hospital gangrene, septicemia and even tetanus. Yet, strange as it may appear, this work of Lister remained for some time unappreciated, being received with scepticism and distrust. It seemed at that time visionary for one to claim to heal wounds without suppuration. And here I may be pardoned if I inject into my theme my visit to and kindly greeting by Lister, through a letter of introduction given me by the lamented Dr. J. Marion-Sims, whom I had known personally for some ten years previous. While walking the various hospitals of London, from February until October, 1883, I presented my letter to Lister one day at the close of a clinic at Kings College Hospital. With genial hospitality he conducted me through the various wards, going from patient to patient and taking special pains to instruct and instil into me his method of dressing wounds. You can imagine my pleasure in receiving, while yet an undergraduate, such consideration and in such kindly words, too, and I can assure you its impression has never to this day been dimmed in the slightest degree.

It was not until 1860 that the foundation and superstructure of cellular pathology was laid by the great Virchow, whose master mind is still at work in his chosen field. Application to this branch has given us accurate and detailed information as to anatomical changes requiring surgical interference. The names of Rudolf Virchow, of Louis Pasteur, of Sir Joseph Lister and of Robert Koch represent the latter half of the nineteenth century's greatest achievements in experimental medicine.

In an able paper by Dr. John A. Wyeth, on The Value of Clinical Microscopy, Bacteriology and Chemistry in Surgical Practice, delivered as the Address in Surgery, at the last meeting of the American Medical Association, is the following: "While I would in no measure detract from the value of a thorough technical knowledge, we should not, in our attention to the art, fall short of a proper appreciation of the science of surgery. The experienced surgeon soon learns that it requires more than asepsis and the rapid and skilful performance of an operation to achieve the fullest measure of success; that although a thorough practical knowledge of regional anatomy is essential in the highest degree to the conscientious fulfilment of the professional obligation, it is equally important that there be called into requisition the invaluable aid which laboratory research alone can give in determining an accurate diagnosis."

The discovery of antitoxins, the natural antidotes to the poisons of infectious agents, is one made at the end of the past century. Its existence was not recognized until the presence of parasites and poisons generated by them was proven. What is true of diphtheria, in the triumph achieved through Behring and Roux's discovery of an antitoxin serum, may be true of all infectious processes; and as our knowledge expands a safe immunizing serum may yet be discovered for each special toxemia.

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[1] Anniversary address, delivered at the Twenty-ninth Annual Meeting of the Florida Medical Association, Tampa, Florida, April 9, 1902.

The etiology and pathology of cancer are the most important questions of the day; a flood of light is about to be focused on its dark problems, giving strong hope of an early definite solution. Whatever theories may exist as to its cause, two facts in its history are at present generally admitted: First, in its inception it is of local origin, the process of generalization being relatively slow; second, it is the result of traumatism, or local irritation of the part affected. Its loathsome and fatal nature and the careful investigations conducted at present with regard to its origin and eradication combine to invest the disease with rare importance.

The claim is made by Roswell Park that not only have pathologists, in their studies from autopsies, missed some of its most important aspects, but that surgeons, seeing in this mystery only the question of how far they may go with the scalpel have missed the fundamental theories of its origin and the consideration of its etiology upon which its whole successful therapy must be based. As patent predisposing causes I would mention heredity, racial, climatic, and topographical influences. While generally occurring in persons of advanced age, it is not infrequently met with in young adults, the disease in the latter instances being characterized clinically by greater malignancy. In a recent statistical paper by Dr. Lyon, bearing upon the distribution of cancer in Buffalo for the past twenty years, he points out the fact that it has been relatively on the increase, from 32 per 100,000 in 1880 to 53 in 1899. Dealing also with race distribution, he states that Germans and Poles, constituting but 20 per cent. of the population, are credited with 42 per cent. of the cancer mortality; while native Americans, constituting 65 per cent. of the population, are credited with but 29 per cent. mortality. Statistics further show that one out of every 14 men, and one out of every 9 women reaching the age of thirty-five years, die of cancer.

Cicatrices, benign epithelial growths, and chronic inflammatory conditions, also favor the development of malignant disease. As regards the influence of mental depression on the development of the latter, Dr. J. D. Bryant has within the past year investigated the relation existing in death by cancer between the mentally sound, the melancholics and those afflicted with other forms of insanity, his conclusions being that it can scarcely be considered a factor in etiology. The relation of trauma to malignant diseases is an established fact, especially shown in scirrhus of the breast and epithelioma of the cervix uteri.

Ever since the announcement of Schwann's theory of life and Virchow's cellular theory of morbid processes, the point of view of the pathologist and the biologist has been the same. The latter are now workers in the same field, viewing vital phenomena in the focus fixed for them by the two investigators named, as well as by Darwin, Huxley and Spencer. In the study of the origin and evolution of the subtle vital processes which go on in the cell lies the key to the problems of life and disease. In studying the phenomena of cell-division, one can more readily understand, according to Dr. E. B. Wilson, in an address before the Yale Medical School in June last, how mental and physical characteristics have been handed down from parent to offspring on both sides from generation to generation.

Malignant diseases are now included in a division termed parasitic, being composed of natural cells and tissues of the body passing out of their proper location and vocation, arrogating to themselves the license of unlimited multiplication and growth.

Recent researches tend to prove not only the infectious nature of cancer, but its inoculability as well. Cases are recorded in which the disease has spread by contact infection and in which cancer of the upper alimentary tract has been followed by the disease appearing lower down. A primary outbreak of the disease in the fundus of the uterus has been followed by similar lesions of the cervix, and *vice versa*. In the pelvis it is not infrequently due to infection with nodules detached from cancerous growth in the upper part of the abdomen. Traumatic dissemination of the disease by inoculation of wounds during operation is generally admitted. Yet Senn, claiming that proof is lacking that cancer has ever been inoculated, attempted to inoculate himself with a piece of fresh cancer taken from a lip, the small papule forming at the site of inoculation soon disappearing, leaving but a small scar. This single instance seems to me but scant proof in favor of his assertion, since we not infrequently meet with similar conditions and failures resulting from vaccine inoculation. A virtual admission of the infectious nature of cancer by one of the strongest opponents, Roger Williams, is the warning given that care should be taken to avoid cutting into the malignant neoplasms during their removal, for the tenacity of life and the wonderful proliferative power of even the most diminutive fragments of cancer is such that, when left behind, they only too often constitute fresh centers of disease.

Some progress has been made within the past two years toward a solution of the problem of its etiology and pathology through the careful investigations of Drs. Gaylord and Park at the New York State Pathological Laboratory. Those included not only the ordinary histological and bacteriological methods, but also its study from a biological and chemical standpoint. They have satisfied themselves that death in cases of cancer results from a terminal—a hematogenous—infection, brought about by a distinct toxemia. In their experiments upon animals, by inoculation and injection, this feature has become so very distinct as to be positively striking.

Examination of fresh scrapings and of numerous tumors showed that in all rapidly growing tumors a great number of parasitic organisms were present. Also through experiments upon animals and by postmortem examinations of patients dying of cancer, they have been able to demonstrate that all the organs, as well as the blood, of patients dying of cancer, including sarcoma and epithelioma, contain large numbers of parasitic organisms, polymorphic to an extreme degree, masquerading under many forms and changing with their different stages of reproduction.

By incubating hanging-drop preparations of fresh scrapings from cancer, the smaller forms can be followed in their development as they increase in size; and if kept upon a warm stage they may be seen to throw out especially developed nuclei and conclude their life history by a formation of a sac in which they develop their spores. This so-called cancer parasite is usually intracellular, gradually increasing in size, the nucleus of the cancer cell usually plainly visible, being pushed aside by the parasite.

Comparing the plates of various writers, the most striking feature is in the fact that, while they all agree as to the extraneous nature of certain cells which they picture in various stages of cell-division or reproduction, they differ in great part in the peculiar interpretation of the phenomena they illustrate; an Italian writer showing the presence of blastomycetæ, the French terming them protozoa, while the German investigators indicate them as products of cell degeneration.

Although the trend of opinion before us is that cancer is of parasitic origin, the minute nature of the germ is as yet unknown; from the knowledge obtained through recent investigators, we may glean that different forms of those parasites have specific tendencies in one direction or the other. We are undoubtedly nearer the light which is sure to come from future investigation.

Cullen, of Johns Hopkins, has recently shown that from three varieties of uterine epithelioma as many distinct types of carcinoma may be developed; and the opinion has also been advanced by an active investigator that it may, and probably will, be found that the parasitic origin of cancer is not a question of any single organism, nor even of a single class, its analogy existing in the several organisms producing pus formation and in the three known types producing malarial fever. Although carcinoma as a type of disease is an example of epithelial infection (for without infected epithelium there is no cancer cell or cancer formation), and although sarcoma is an infection of connective tissue—in all probability by the same organisms, the tissue cells reacting somewhat differently—further research will elucidate the problem as to which kind of parasite prefers the epithelial cell and which the connective-tissue cell.

While Cullen declares that all efforts in the line of culture of the parasite have so far met with negative results. Gaylord, on the contrary, states that in his later experiments upon animals he has succeeded in cultivating an organism directly from cancer, the culture medium being fucus crispus bouillon. Attempts to stain them were, however, but partly successful. From these experiments he determined to his satisfaction the identity of the organisms found in the fresh state and the forms known as Russell's bodies, Plimmer's bodies, and the protozoon forms in the tissues. This organism was found abundantly in all organs, including the blood, in all cases of cancer; when the cachexia was well marked the organisms, especially in their younger forms, were found in the peripheral blood.

Touching upon the question of diagnosis, it is of the greatest importance in suspected malignant disease, for upon an early diagnosis and an early operation depend the success and even the possibility of any radical treatment. Acuteness in diagnosis is the result of general learning and familiarity with all the elements conducive to a true appreciation of both symptomatology and pathology.

The fallacy of the classical teaching concerning climacteric hemorrhages has done more than anything else to prevent an early diagnosis of cancer of the uterus. All cases with irregular hemorrhages should be promptly investigated. The importance of an early recognition of epitheliomatous degeneration of the cervix, as also of the body of the uterus, is in evidence. In the knowledge that its occurrence is mainly in old cases of laceration of the cervix, being actually a disease of the child-bearing woman, recourse should be had to early operation so that the cervix may not present a spot of least vital resistance favorable to the development of the disease.

When a suspicion of malignant disease exists a microscopical examination of *débris* from the uterine cavity, through an exploratory curettage or a portion of tissue excised, should be made as a means of arriving at a correct diagnosis. While it has been questioned whether a preliminary microscopical section should be made for diagnostic purposes, in that the procedure might increase the activity in the growth, it is my conviction that every suspicious growth should, when possible, be subjected to pathological examination.

Because of the great variety in the nature of breast tumors and the tendency which even benign tumors have to undergo pathological changes, developing not infrequently into malignant growths, it is imperative that every tumor of the breast of whatever nature be excised, and at the earliest possible moment. The fact that cancer-cells have been found below the fascia in such tumors proves the necessity of extension of surgical interference by removal of the pectoral muscles and the glands in the axilla. It is a fact that when cancer cells have disseminated themselves so that they are not accessible to the scalpel a speedy relapse is to be expected. If the case be dealt with early in the course of the disease the hope of long freedom from a return is almost assured; its reappearance after a period of three years or more is to be regarded as a new infection.

In the diagnosis of certain obscure surgical lesions of the stomach, and as an aid in arriving at the exact condition of the digestive functions of the organ—any derangement of which it is at times important to correct in order to prepare a patient to withstand an operation—the laboratory proves of invaluable assistance.

A ray of hope in both inoperable and postoperative sarcoma is afforded by the use of Coley's preparation of the mixed toxins of erysipelas and bacillus prodigiosus. The true explanation of the action of the toxins is probably found in the parasitic and infectious origin of both sarcoma and carcinoma.

In the modest Physical Institute of Würzburg, Bavaria, the X-ray first saw the light, marking Roentgen's epoch-making discovery and research on the cathodic rays of Crookes. The theory advanced by Hopkins, in his work on treatment of carcinomatous growths by the X-rays, using the soft tubes only, is that their power of altering tissue is in proportion to the power of that tissue to resist any destroying agent. The embryonic cells which largely compose carcinomatous tissue are made up of unstable molecules and can readily be rearranged or even destroyed.

This brings us to a realization of the fact that the results achieved in the treatment of malignant disease are as yet markedly deficient, though favorable in contrast to those of only a generation ago. Out of the growth of elaborated surgical methods a more optimistic view has come into existence, recent statistics showing that, with modern technic, the period of immunity from recurrence after radical operation is lengthening and the percentage of apparent cures steadily increasing.

The surgeon's art lives on and will live on forever. In the tendencies of to-day is foreshadowed what lies buried in the future. Standing as we do at the threshold of a new century let our confidence be unshaken in anticipating still greater and equally marked developments in the field of bacteriology and surgical pathology.

REPORT OF A CASE OF NON-TRAUMATIC ACUTE SUPPURATIVE OSTEOMYELITIS WITH CATARRHAL COXITIS: WITH REMARKS.

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CHARLES R., white, a schoolboy, aged thirteen years and three months and in perfect health, walked down town from the Academy, a distance of about a mile, on the evening of November 9, 1900. While there he accidentally struck himself smartly upon the inner aspect of the right ankle with the rounded head of a wooden ramrod. Returning shortly to the Academy he had made about half the distance when he began to limp on account of the pain in the right foot. He arose the next morning and hobbled over to his breakfast, but as the sight of food caused a sensation of nausea he refused his breakfast.

His temperature was taken at 10 A.M. and found to be 101° F. Despite this he was assisted to the football field by his schoolfellows to witness a game. There was snow upon the ground and a chilling wind prevailed. After twenty minutes' exposure he became chilled and asked to be taken indoors, where he hung about the radiator for an hour when, on attempting to crawl upstairs to his room, he found the attempt futile without assistance. His evening temperature was 102° F. On being telephoned his condition I took him the same night to his home in Chicago, a distance of thirty miles by rail. That evening he began to complain of pain in the right groin. The ankle was red and painful on movement. The foot was swollen, especially on the dorsal surface with veinlets coursing over it. There were no abrasions. A small scab appeared on the fourth toe, covering a minute abrasion possibly due to friction from the breaking in of a new pair of shoes on the day preceding the inception of the disease. There were no corns nor ingrowing toenails. The mucous outlets of the body showed no signs of infection.

On the following day some red scattered patches appeared along the line of the femoral vein. These were visible for several days and betokened a lymphangitis along the course of that vein. The spontaneous agonizing pain in the right thigh, referred by the patient to the area of Scarpa's triangle, persisted in a mild degree, but with frequently recurring exacerbations and with such severity as to require a $^1/_{16}$-grain pellet of morphine sulphate on the third, fourth and fifth nights of the disease. The temperature for the first week varied from 100 to 103.4° F. There was always an evening rise. During this time there were marked night sweats, and the perspiration had a sour odor.

In the meantime the ankle-joint, which had been kept wrapped in cotton batting, caused but little concern to the patient, and as a clinical phenomenon soon fell into insignificance, the foot and ankle appearing normal within two weeks from the onset of the disease. About this time the patient was carried to the bath-room for a warm bath, and it was noticed that while holding him supported by his well limb there was absolute inability on his part to swing or move the affected limb in the least degree in any direction. Its inertia when at rest in the hanging position could not be overcome one iota by the earnest endeavor of the patient and to his great astonishment. This sign, as I have since learned, is of the greatest diagnostic import in osteomyelitic coxitis. Reflected pains in the knee-joint had been frequently complained of, I may add.

Up to this time the diet consisted chiefly of three pints of fresh cold milk *per diem*. The pulse ranged from 90 to 114 beats per minute; the tongue presented a creamy coat with a tendency at times to show a brown dry streak along its central line; the bowels were regular and normal; the urine was free from albumin. At the end of the second week the temperature curve touched the normal, but, an evening rise up to 100° F. persisting, I expressed my anxiety and apprehensions in the case to Dr. Arthur D. Bevan, who kindly consented to examine the case for me. He saw the patient for the first time on the twenty-sixth day of the disease and noted the following conditions:

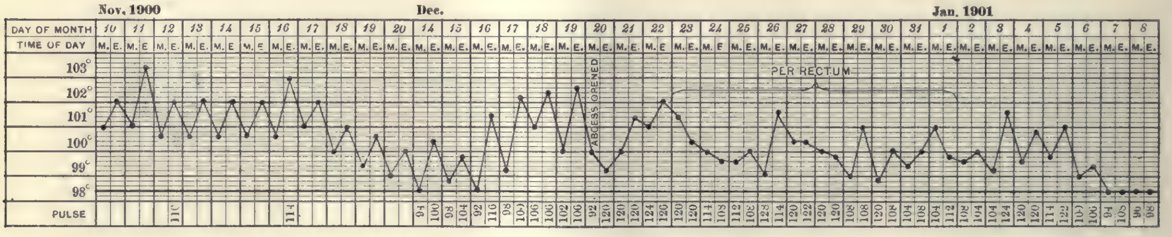
A cord-like mass in the right thigh extending from Poupart's ligament, or slightly above, to the location of Hunter's canal. The anterior aspect of the affected thigh was broader than that of its fellow; there was an unusual degree of hardness or stiffness in the region below Poupart's ligament and the anterior spine of the ilium had lost its prominence. The limb rested most easily in a position of partial flexion at the knee with slight abduction and external rotation of the femur. The case was regarded as one of an infectious nature and the fever as septic in character. Perfect rest was enjoined with an abundant nutritious dietary. I might note here that throughout the entire course of the disease the appetite was excellent with but few exceptions, and the functions of assimilation and excretion were splendidly performed.

Four days after Dr. Bevan's first visit the temperature became normal and remained so for three successive days; but a marked evening rise again recurring, Dr. Bevan again saw the case (December 16) and advised the use of a Buck's extension apparatus. Accordingly this was applied without delay, a weight of five pounds being used. For the next three days the temperature again became remittent, ranging between 100 and 102.6° F. Fearing some complication of the internal organs, at Dr. Bevan's request I asked Dr. J. A. Capps to see the case with us. He made a thorough examination of the internal organs and pronounced them free of infarctions and all other pathological entities. This exclusion of disease of the vital organs strengthened our suspicions of a deep-lying abscess of the thigh, too deep-lying for the palpating fingers to detect fluctuation. On the following day (December 20) the patient was removed from his home to the Presbyterian Hospital, where he was kindly seen by the late Dr. Christian Fenger, who encouraged an attempt to locate the abscess by explorations with a long hypodermic needle. The following notes were made at this time by Dr. Frank H. Russell, senior interne upon Dr. Bevan's division, on the local examination of the affected region: "Inspection: No abrasions of skin; leg flexed at knee and in outward rotation; slight reddening and swelling on inner side of thigh, high up. Palpation and manipulation:

SKIAGRAPH OF PELVIS, SHOWING CONDITION OF RIGHT FEMUR.

Patient does not complain of pain when his leg is gently rotated; pressure upon the ilium is not painful; femoral vessels free; upon the inner surface of the thigh about two inches below Poupart's ligament is the point of induration."

Operation (December 20) by Dr. Bevan; cocaine anesthesia, 1 to 1,000 Scheich's mixture: about 40 minims used. Needle of aspirating syringe introduced upward and outward towards the lesser trochanter. Upon penetrating to the depth of about three inches, the point of the needle gave the sensation of having entered an abscess, but upon aspirating, no fluid appeared; it was thought that the needle had become clogged, and upon its withdrawal a serous-looking fluid followed along the line of puncture and escaped with some force as though under considerable pressure. An incision 1½ inches in length was then made through the skin and the pocket cut down upon with the escape of about 50 c. c. of pus. The probe showed denuded bone at the base of the lesser trochanter posteriorly, in the fossa, as it were. A rubber drainage-tube of the size of a lead pencil was inserted and hot moist boric-acid dressing applied. The patient was placed in bed and a Buck's extension apparatus applied. The drainage-tube, or one of smaller dimensions, was finally dispensed with two months and three days later. Of the pus evacuated on the day of operation, growth upon nutrient media gave a pure culture of the staphylococcus pyogenes aureus.



Four days after operation a blood-test was made with the following report: Hemoglobin (Fleisch) 53 per cent.; red corpuscles 4,080,000 in 1 c.c. blood; white corpuscles 9,900; no differential count of the leucocytes was made.

This lad left the hospital on January 21, 1901, but the limb was kept encased in a plaster-of-Paris dressing extending from the toes to the armpits, the drainage-tube being permanently removed on February 23. Crutches were then used to permit of locomotion and finally about two weeks later the plaster-of-Paris case was abandoned and a cane substituted for the crutches.

At this time examination revealed the absence of any bony ankylosis at the hip-joint, the partial or fibrous ankylosis, however, being sufficient to hinder the lad from sitting equally on both ischia at the same time and from describing with the injured limb the requisite curve in bicycling. By massage and gentle passive motion sufficient movement in the joint was regained to allow of a natural posture in sitting and of riding the bicycle. Forty treatments in mechanical exercises, conjoined with alternate hot and cold douches to the body and followed by massage, were taken at the Hygienic Institute in Chicago under the management of Professor Matsen.

The two potential evils that always beset a limb recovering from an osteomyelitis are over-exertion and exposure to cold, and in view of the former it becomes a matter of delicate discrimination how far passive movements may be carried without reexciting the inflammatory element. The shortening of the limb in the present instance amounted to 2 cm., which has been readily and in a large measure satisfactorily overcome by the use of a cork insole chiefly under the heel of the foot. This insole has been very skilfully fashioned and supplied by Mr. Don Lyle. In case the upper of the shoe does not meet in the central line over the tongue, a new upper can be manufactured for the shoe of the affected side having regard for the presence of the insole.

In conclusion, while the tuberculous form of osteomyelitis is sufficiently common to have come, time and again, within the observation of every practitioner of surgery, the form indicated by the caption of this paper, comparatively rare, well-defined in its symptomatology and demanding early recognition for its successful treatment, is, I venture to say, often erroneously diagnosticated in its incipient stage. One must be not only well informed upon this subject, but constantly upon one's guard if one will cleverly diagnosticate the first case of the kind that may fall into one's hands.

Remarks.—Among the very recent literature on the subject of diseases of the hip-joint, exclusive of the tuberculous form, Hoffa, in the *Handbuch der Praktischen Chirurgie,* 1900, makes some interesting remarks pertinent to the case above related, upon the subject of coxitis in consequence of osteomyelitis. In Sayre's clinics during my student days these cases were all regarded as referable to a trauma as the etiological factor of the disease, but in very recent times an almost complete reversal of opinion has set in, based upon modern methods of bacteriological research and more exact clinical observations. Owing to the countless knocks and mishaps of childhood and youth it was not difficult for the clinical recorder to light upon some recent trauma with which to satisfy his preconceived notions of the etiology of hip-joint disease; but with the recent light that bacteriology has shed upon the parasitic nature of the infectious fevers and the rôle played by the pus-formers in inflammatory conditions, the clinician's change of front has been both rational and wholesome. In the *Tübingen Klinic* Hoffa states that there have been observed and recorded, during the last forty years, 106 cases of hip-joint osteomyelitis. In only 3 cases was the disease referred to as "catching cold." In 15 cases, trauma, such as a stroke from a stick or a fall upon the joint or a strain from sliding, etc., was alleged as the exciting cause. As to ages, 12 cases out of the 106 occurred between one and five years; 25 between five and ten years; 43 between fifteen and twenty years; 2 between twenty and twenty-five years; and one only at twenty-six years. The male sex was more frequently affected than the female, but there was little difference in the side affected; there being 48 right, and 46 left and 12 double.

Going on with a very free translation from the German, which I make, Hoffa, under Pathological Anatomy and Symptomatology, remarks: Osteomyelitic coxitis may originate as well from an affection of the femur as of the acetabulum. in the case of the former a purely epiphyseal localization is very rare. Most generally the diaphysis and epiphysis are simultaneously affected. Indeed, in a larger sense the epiphysis may be considered as extending from the level of the trochanter minor. The special characteristic of epiphyseal osteomyelitis as contrasted with diaphyseal is that in the former the infection foci are for a long time circumscribed. Out of these foci are developed multiple bone cavities filled with pus or granulations and generally small particles of osseous material-sequestra. These latter may become absorbed or may remain for years.

The finality of epiphyseal osteomyelitis is generally atrophy and diminution of the bony parts involved. The epiphyseal cartilage forms a natural barrier against the extension of the inflammation, but the epiphysis may become loosened from the diaphysis and necrose, and the head of the bone become a free body in the joint cavity. With these inflammatory extensions an inflammation of the synovial membrane goes hand in hand, from a light adhesive serous or catarrhal synovitis to a complete suppuration and destruction of the joint.

Symptoms.—A sudden invasion—a child takes to bed from the first day—fever and chilly sensations and a complete abolition of functions of the affected limb, with terrific spontaneous pains in the hip or knee. Pressure over the trochanter, or striking the soles of the feet, and any attempt at passive movement of the limbs increase the pains. (In tuberculous coxitis the onset is not sudden.) Swelling about the hips and gluteal and anterior femoral regions of a boggy edematous character sets in. There may be multiple joint affections, as in rheumatism. In some one joint the inflammation becomes localized while the other affected joints clear up. The catarrhal cases may clear up in from four to six months or possibly a year: the suppurative cases may continue for three or four years should the patient not succumb to pyemia, septicemia or some intercurrent affection or amyloid degeneration of organs. Spontaneous luxation of the joint may ensue with ankylosis and distortions; namely, flexion, adduction, abduction, rotation, or combinations of these.

MEDICAL PROGRESS.

MEDICINE.

Digestion and Assimilation of Albuminoids.—It is now known that pepsin and trypsin not only change albuminoids to albumoses and peptones, but by further transformation produce crystalline bodies which are identical with those obtained artificially by hydrolysis of the albuminoids. Albuminoid derivatives, writes E. SCHMOLL (Sem. méd., July 30, 1902), may be classed into two groups; namely, acid bodies giving the biuret reaction (the acid albumoses, the deutero-albumoses, and the peptones), and basic crystalline bodies which do not give the biuret reaction (arginin, lysin, histidin, glycocoll, leucin, tyrosin, and amidopropionic, asparaginic and glutamic acids, etc.). New proteolytic ferments also have been lately discovered, so that in the stomach, besides pepsin, there is pseudopepsin, secreted by the pyloric glands, and in the intestine, besides trypsin, there is érepsine, secreted by Brunner's glands, and capable of decomposing albumoses and peptones, but not unchanged albuminoids. Zunz has demonstrated that after three or four hours of pepsin-digestion 30 to 40 per cent. of albumin has lost its albuminoid structure, being no longer precipitated by phosphotungstic acid, and has become crystallizable. The rest is albumose, with a mere trace of true peptone. The crystallizable bodies are the most readily absorbed by the gastric mucosa, but are not found at all in the blood, and appear to undergo a reconstruction into proteid in the cells of the mucous membrane. Thus the animal body is able to build up proteid out of non-proteid matter, a function heretofore supposed to belong solely to plants. Little is known of "pseudopepsin" except that it acts in either alkaline or acid media, and produces "tryptophane." In intestinal digestion recent researches show that when digestion by trypsin is carried to a conclusion the entire end-product consists of crystalline bodies without any albumose or peptone. It is also shown that the secretion from Brunner's glands is capable of changing albumose and peptone very rapidly into crystalline substances (leucin, tyrosin, lysin, etc.), yet these are not found in the circulation. Löwi has kept a dog in excellent health by feeding it these crystalline bodies, so there is fair proof that the animal can build its albumin from non-proteid substances. It is shown also by Schulze that asparaginic acid is one of the substances from which plants build up their proteids, so undoubtedly the analogy of the synthesis in the plant-cells, and in the cells of the animal's digestive tract is very close.

Action of Suprarenal Extract.—By injecting 5 c.c. of a 5 per cent. solution of suprarenal extract directly into the veins of animals, F. SAMBERGER (Wien. klin. Rundsch., July 20, 1902) noticed almost immediate extreme pallor of all visible mucous membranes, and maximal dilatation of the pupils, which no longer reacted towards light. At the same time larger doses were followed by a pronounced exophthalmos. The salivary secretion increased considerably. If the animals were placed on the ground the following characteristic picture was obtained: The hair along the spinal column became erect; the tail was turned upward, and extreme ataxia of gait was evident; depending upon the size of the dose, the muscles of the hind extremities showed fibrillary twitchings, spasm, or spastic paralysis. The breathing was often peculiar. Soon after the injection the animal breathed rapidly and noisily with open mouth and stretched-out-tongue; and sometimes the Cheyne-Stokes type could be seen. The action on the pulse was not always the same, there being at times tachycardia and at other times bradycardia, but the force was always increased. Other symptoms were vomiting, dribbling of urine and spermatorrhea. Repeated injections led to loss of weight and hypertrophy of the left ventricle. Some animals seemed to show a certain idiosyncrasy. Others got rapidly accustomed to the drug, so that there was some difficulty in determining the toxic dose. When the injections were made intraperitoneally it was found that absorption was very slow; when subcutaneously, pain was experienced, and the following day necrosis with suppuration set in.

A Case of Paracolon Infection.—The clinical picture of the case reported by E. LIBMAN (Jour. of Med. Res., June, 1902) resembled that of a cholecystitis or liver abscess. The Widal reaction soon became positive in a dilution of 1 to 250, but the paracolon bacillus was also found in the gall-bladder, blood and urine, while typhoid germs did not occur there at any time. On autopsy, healing ulcers were found in the ileum. It is natural to suspect that the case was one of ambulatory typhoid with secondary paracolon infection. The objections to the diagnosis typhoid might be: (1) That the presence of the Widal reaction depended upon the personal equation of the examiner. Against this may be said that a reaction is never regarded as positive unless agglutination is perfect. (2) That the case was an instance of a positive Widal reaction in a person not suffering from typhoid. This, however, never occurred to the author in an experience of over 1,000 cases. (3) That the patient had had typhoid at some earlier time. The fact that the reaction developed after it had been negative several days speaks against this. (4) That the jaundice accounted for the positive reaction. This also the author has never seen when the reaction is done properly. (5) That the positive Widal reaction depended in some way upon the paracolon infection. This is improbable because agglutination was so much stronger with the typhoid than with the paracolon bacillus. It is not known whether lesions occur in the intestines in paracolon infection, as this is the first fatal case reported. The possibility of a mixed infection, since the ulcers form a ready portal of entry for intestinal germs, has been considered by other authors, but no previous case seems so suggestive as this one. It is important for the practitioner to know that there do not exist the same comparatively simple conditions regarding serum reactions as for the bacillus typhosus in typhoid fever. If possible, for the present the diagnosis of paracolon infection should rest on the recovery of a bacillus of the group, preferably from the blood or urine.

Source of Sugar in Diabetes.—In severe cases of diabetes there often is considerable glycosuria, even if all saccharine and starchy food is withheld. It was formerly thought that here the sugar was derived from proteids, but it has since been shown that fats also are responsible to some extent. But A. HESSE (Zeitsch. f. klin. Med., vol. 45, Nos. 3 and 4) points out that to account for all the glucose in the urine enormous amounts of fat must undergo decomposition, and the same holds true for proteids if the amount of destroyed proteid is measured by the nitrogen in the urine. Theoretically the only explanation remaining is that the carbohydrate molecule of the proteid is split off and the rest retained. The experiments of the author seem to bear out this view, and hence the real part the proteids play in bringing about the glycosuria cannot be estimated by the nitrogen in the urine.

Fever and Respiration in Pneumonia.—Apropos of a case in which there was consolidation of two-thirds of the lung, and in which respiration remained normal and temperature was but slightly raised, M. SANGIOVANNI (Gazz. degli osped., August 3, 1902) discusses the relation between respiration and fever in pneumonic cases, and argues that rapid respiration depends not so much upon inability of the consolidated lung to perform its function properly as upon the greater or lesser virulence of the toxins elaborated, which stimulate the respiratory center as they do the thermic. In support of this argument he cites the fact that many cases of extensive consolidation run their course with but slight fever, whereas limited consolidation may give rise to extreme elevations of temperature; and that in delayed resolution of pneumonia respiratory disturbance ceases with the subsidence of fever, while consolidation still persists, and before the lung might be supposed to have regained its normal power of aeration. The author takes these facts as an indication that respiratory and febrile disturbances are in relation as to their intensity with the virulence of the toxins elaborated, and as to duration with the laws which govern the biological cycle of the pathogenic organism.

"Goundou."—This rare affection, characterized by tumors of the nasal bones, and variously called "anakhre," "gros-nez," or "hen-purge," has been classed with the diseases of tropical countries, and Manson, in his work entitled "Tropical Diseases," states that it is usually encountered in Africa and is confined exclusively to the negro race. J. M. ESPIN (Rev. de la Assoc. Méd. Far. de la Isla Cuba, Lear II, No. IX, 1902) of Cuba reports a case of this kind in a colored girl of between 10 and 11 years, a native of Haiti. The characteristic nasal condition is described as follows: A tumor about the size of a pigeon's-egg upon both nasal bones, oval, hard, resistant and immovable, giving the impression of a bony growth, adherent to the nasal bone. Skin healthy in appearance and freely movable over the tumors. Nasal passages normal. The various theories as to the etiology of the affection are reviewed by the author, who holds it to be of syphilitic origin, this in some instances being the only osseous manifestation. In Espin's case a significant history of both father and child, enlargement of the subtrochlear glands, and osseous tumors elsewhere, as well as a dactylitis, lend support to the author's theory, which ascribes "goundou" to hereditary syphilis. For lack of a better name, the lesion is termed hereditary syphilitic ostitis, the latter being believed to be generalized, modified, or limited to the nasal bones in individual cases.

Hirschsprung's Disease and Idiopathic Megacolon.—Under the name of congenital megacolon or Hirschsprung's disease, a morbid condition whose predominant and initial symptom is obstinate constipation which is evident from birth, accompanied by more or less enlargement of the abdomen, has recently found a place in the pathology of the intestines. Anatomically it is characterized by abnormal dilatation of the colon, as a whole or in part, without a causative stenosis and with what are thought to be secondary changes in the intestinal wall, such as infiltration, sclerosis, atrophy, ulceration, etc. Since the condition has been given a name, several instances of ectasis of the colon have been reported. Judging from the description of these, and from a case which came under his personal observation, G. TAROZZI (Rif. Med., August 13 and 14, 1902) deems it probable that megacolon may occur as an idiopathic condition. In the case referred to the greatest circumference of the colon reached the enormous proportion of 40 cm.; the whole dilated portion presenting the appearance of a greatly dilated stomach, and entirely concealing all the abdominal viscera. Examination of the wall revealed marked hypertrophy, chiefly involving the muscular coats, with practically no change in the mucosa. The hypertrophy of the muscular coat, together with the histological integrity, and hence, presumably, functional integrity of the wall, are thought to indicate that the dilatation was not due to a passive yielding of the wall through congenital or acquired structural defect, or defective innervation. In the absence of a satisfactory history, and from the fact that the condition was discovered at autopsy in an imbecile, with tendency to depression and melancholia, who had been confined in an asylum for 30 years, the author interprets the ectasis as the result of dull general sensibility, with consequent retarded reflex contraction in response to the stimulus of the intestinal content, the more forceful contraction necessary to expel the accumulated fecal matter resulting in a gradual adaptation of the intestinal wall to the abnormal condition and compensatory development of muscular tissue.

Malaria and Thermic Fever.—Attention is called to the fact that these two conditions may sometimes have certain common characteristics, especially when the pernicious type of malaria is considered. I. V. LEVI and J. M. ASHER (Phil. Med. Jour., August 16, 1902) in certain cases had found the usual treatment directed against supposed heat-stroke unavailable, and were led by the appearance of a distinct malarial paroxysm in one of their patients to make a blood-examination. In this and a few other cases they found typical plasmodia. They suggest therefore the value of making immediate physical examination with especial reference to splenic enlargement and a thorough search in the blood for malarial organisms in all cases suffering from hyperpyrexia. They report having found the plasmodia in nine patients received into the hospital as cases of sunstroke, and in whom the usual therapeutic measures brought satisfactory relief.

The Nature of Primitive Grave Icterus.—A general disease of infectious nature, primitive grave icterus, according to E. SACQUÉPÉE (Arch. de Méd. expér. et d'Anat. path., July, 1902) provokes simultaneous anatomical lesions in different organs, among which the liver, kidneys and pancreas are prominent. The degree and nature of these lesions vary according to the pathological agent, associated circumstances and previous condition of the respective organs. The clinical syndrome is complete. The predominance of the hepatic and renal symptoms does not indicate that the other organs are not deeply affected. In this disease the liver does not disintegrate the bodily poisons, nor does it transform the waste products, and it manufactures its own physiological products with difficulty. The kidney eliminates little or nothing at all. The antitoxic powers of the other organs are rendered inert.

Tracheotomy in Laryngeal Diphtheria.—The necessity for prompt and successful relief in cases demanding this operation should cause every physician to feel the need of being prepared for such an emergency. A. K. GORDON (Med. Chron., June, 1902), referring to the indications for operation, says that in the stage of active discomfort, where there is restlessness and dyspnea, but no cyanosis, operation should not be immediate, and a sufficient dose of antitoxin should be given, unless the case cannot be watched, in which event it may be best to do the operation at once. It is during the stage when active discomfort is beginning to pass into that of diminished distress, which is heralded by blueness of the lips, that the operation should be done at once. The chief occasion requiring tracheotomy in the absence of cyanosis is when repeated attacks of dypsnea point to the presence of loose membrane in the trachea or larynx. A careful dissecting operation necessitates much time, the use of an anesthetic, which in itself is very dangerous, and it usually causes profuse hemorrhage, which can always be controlled better by opening the trachea and inserting the tube than by any endeavor to clamp the bleeding-points with forceps. The method preferred by the author is as follows: The child is pinned up in a sheet from feet to arms, and a sand-bag is placed under the shoulders. The head is held firmly by an assistant, so as to make the trachea as prominent as possible and to avoid any rolling from side to side. A cut is now made about an inch in length downward from the cricoid cartilage, through the skin only. A small skin-incision causes less trouble in subsequent treatment. The left forefinger is now placed upon the cricoid cartilage and an incision made through the trachea from below upward fully as long as the skin-incision. No attempt should be made to stop the hemorrhage, but the tracheal dilators are at once inserted and the child turned on its side to cough up any blood or membrane. Forceps rather than a feather should be used to extract any membrane. Large tubes are usually more comfortable than small ones because they irritate the trachea less, and it is impossible for membrane that is above the tube at the time of operation to fall down and obstruct the tube later. The inner tube requires less frequent changing and is less liable to stick. If granulations form below the tracheal wound, the best treatment is to insert the largest tube that can be used and leave it in for two or three weeks without being changed. No attempt should be made to scrape them out or to use caustics.

German Measles.—The existence of this contagious eruptive fever is now denied only by those who have never seen it and yet there is considerable confusion among the members of the medical profession in regard to the diagnosis. As the disease has such a slight mortality, the diagnosis becomes more important on account of the danger of exposure to scarlet fever, especially in institutions when the case is entered as such. R. W. MARSDEN (Med. Chron., June, 1902) believes that it is a feebly contagious disease with an incubation period of at least 12 to 14 days. The prodromata are very slight, and anything more than a mild headache and sore throat is very uncommon. Frequently the rash is the first symptom. Sneezing sometimes occurs and is an important diagnostic factor against scarlatina. Stiffness of the back of the neck, due to enlargement of the glands in the posterior cervical triangle, is a symptom upon which much stress is laid by Fonge-Smith. The rash appears as discrete pink papules, being first noticed, as a rule, about the face, and invading the circumoral ring. Its presence is rarely delayed beyond the second day, and it rapidly passes downward over the body, fading above. No part of the body is exempt from the rash. At first it resembles closely the rash of measles, but as it fades the color becomes lighter and the rash blurred, so as to be of itself indistinguishable from scarlatina. In measles the rash reaches essentially a simultaneous maximum over the whole body, but in rötheln the rash may be nearly gone upon the face when it reaches its height upon the legs. The accompanying inflammation of the pharynx and conjunctiva is fairly constant, but is of a much milder degree than in measles, and frequently is hardly noticeable. The temperature seldom goes above 101° F., even when the rash is most marked.

It is important to note that it gradually rises during the appearance of the rash upon the upper part of the body within the first two days, and disappears by lysis as it fades away in this region.

OBSTETRICS AND GYNECOLOGY.

Vaginal Hysterectomy without Forceps.—In discussing the relative merits of this method of procedure and the arguments pro and con, H. INGLESSI (La Gynéc., June, 1902) arrives at the following conclusions: (1) In hysterectomy the abdominal route is the one of choice, but that there are cases where it is advisable to employ the vaginal route; (2) in vaginal hysterectomy the operation may be done with the aid of forceps or with ligature; (3) ligation is the method of choice not only in hysterectomy for prolapse, as is admitted by the majority of Parisian surgeons, but in all vaginal hysterectomies for epitheliomata, fibromata of small size, or for salpingo-oöphoritis; (4) the technic of vaginal hysterectomy with ligatures should be based upon anatomic relations, that is to say, hemostasis should be made certain by the successive ligation of the six vascular pedicles which contain the blood supply of the uterus and its adnexa; (5) though the application of ligatures prolongs the operation a few minutes, it simplifies postoperative conditions, especially for the first two days following the operation. In the large majority of cases the application of the ligatures is very simple, and it seems that surgeons have greatly exaggerated the supposed difficulty of applying the ligatures; (6) the author bases his conclusions on a series of 23 vaginal hysterectomies performed for various diseases of the uterus and its adnexa, and has found the procedure to be perfectly practicable and easy in every instance.

Present Status of the Pessary.—This appliance, the use of which 25 years ago was the sole method for the treatment of uterine displacements, suffered a temporary neglect with the development of surgical measures. F. H. DAVENPORT (Bost. Med. and Surg. Jour., August 7, 1902) thinks that it ought not be entirely disregarded, and now that the indications for its use are better understood and are on a more scientific basis its former position is being partially regained. He believes, however, that in uncomplicated cases in young women who have not had treatment operation should be advised. Operation also is the only method which holds out prospects of a cure in cases complicated with lacerations, enlarged uterus, or much prolapse. Otherwise, where the uterus is small, where symptoms have been present but a short time, and particularly if they are associated with neurasthenia, treatment by pessary will often result in a cure. In such selected cases cure may be expected in one-half. Even in cases where a cure cannot be hoped for by pessary its temporary use is often of value in relieving symptoms and in aiding to restore the general health.

Myxedema and Eclampsia.—Fecundation in myxedematous subjects is very rarely observed, and only in the attenuated form of the disease which is either suddenly stopped in its progress or in the atrophic form. A. HERRGOTT (Annales de Gynéc., July, 1902) reports a very interesting case of pregnancy in a cretin in which there were eclamptic seizures during labor though there had been no evidence of renal disturbance of any sort prior to the onset of the labor. Though the pelvis was small, the labor was in no way unusual except that it was tedious. The child was born. The interesting point in the case was the fact that the eclampsia should come on without any warning. There were no headaches or ocular disturbances. The writer thinks that the cause of the convulsions is to be found in the myxedematous condition of the patient. Jacques Reverdin and Auguste Reverdin believe that there is a marked analogy between eclamptic seizures of this order and the tetany following the oblation of the thyroid gland. Kocher also believes there is such an analogy between postoperative painful muscular contractions and a true eclampsia. Trophic disturbance and nervous troubles are observed in individuals where the thyroid body has undergone cystic degeneration or atrophic sclerosis. Brissaud believes that any disease of the parathyroids may cause marked systemic disturbance, as he thinks these may have a different physiologic function from the thyroid proper. The author believes that the so-called thyroid myxedema is not complicated by intellectual apathy, but it is the parathyroidean myxedema, which has its manifestations in cretinoid idiocy and by cachexia. Hence in his case he believes that the parathyroids were not the cause of the convulsive attacks during parturition in his case, as they were well developed, the thyroid itself being atrophied and practically absent. If a cretin becomes pregnant, which is exceptional, and is seized in the midst of accouchement with eclampsia, then the urine will not contain albumin.

Apparatus for Urinary Fistulæ.—No matter what the type of false passage may be through which urine reaches the surface the patient is in a pitiable condition. A. HOLOWKO (C'blatt f. Gynäk., 1902, No. 30) presented the following notes on a simple means of receiving and disposing of the urine in cases of urinary fistula. He stated that such patients presented themselves frequently at a hospital in such condition that an immediate operation could not be undertaken. Such conditions are suggested by Fritsch in Veit's Handbuch der Gynäkologie, as being classed under the following: Pus processes of any kind about the genital apparatus, ordinary uncleanliness, boils and pustules, and any other condition involving uncleanliness. All such patients must first be freed from all possible contamination, and as a rule many of them require to be "fed up," so that they will accept the operation without too much shock. One obstacle against the successful accomplishment of these necessary aims is that many of these patients can not be kept in the ordinary hospital the necessary length of time, both from the standpoint of the institution and themselves. Oftentimes, with the greatest endeavor at cleanliness, baths, and various rubber machines for receiving the urine, the urine changes sufficiently in the air to render the patient and his surroundings very uncomfortable. In order to correct the evils of this situation, to receive the urine safely and carry it off, he feels that he has devised a simple means, consisting of the following: An ordinary air-cushion is provided with a rubber bottom stretching across the ordinary open space, and in the middle of this a large rubber tube is attached. In order to make this device durable he has caused it to be made of strong fabric, because pure rubber is ordinarily not suitable for it. This air-cushion is then laid on the mattress and the tube attached to it is passed through a hole in the mattress and then into a bottle, which contains the usual antiseptic fluid, preferably some solution of formaline. The one disadvantage of this apparatus is that the floor of the cushion often becomes irregular and kinked, especially around the tube, so that the urine instead of flowing off collects in it. To avoid this he has placed a metal connection tube, incorporated in the floor of the cushion, to which the rubber tube is attached in such a manner as to prevent these difficulties. He has now used this device in his private hospital and finds that the majority of patients are more satisfied with it than with any other means. As a rule they remain quite dry, and the mucous membrane of the genital organs, which usually is so much diseased by the fistula, is given an opportunity to heal so that the operation can be done under the most favorable circumstances.

The Suprasymphyseal Incision of Phannenstiel.—Various methods of opening the abdominal cavity have been exploited within the past few years, having the common object of avoiding in part or whole the danger of hernia through the abdominal wall, which follows any operation in this field frequently enough. O. Beuttner of Geneva (C'blatt f. Gynäk., 1902, No. 30) offers the following notes on his experience with Phannenstiel's suprasymphyseal incision through the fascia. Disinfection of the skin in which the hair about the genital organs grows, must of course be very painstaking. He has found an admirable addition to the usual method of cleansing the skin to consist in several liberal applications of tincture of iodine. The fact that the incision passes through the skin in this very region is one of the difficulties of this operation, but may be surmounted. The skin incision itself he has planned, like Phannenstiel, through the transverse furrow which is usually present in this situation, especially in women, just above the mons veneris. He then differs from Phannenstiel in that instead of loosening the skin and subcutaneous tissue from the fascia itself, he carries his incision directly through all tissues until he reaches the fascia. The object of this slight though important modification is to avoid so far as possible the creation of a "dead space" by an undue loosening of the superficial from the deep structures. The other steps are the same as those of the author of the original operation. He shuts the peritoneal cavity in such a manner that a continuous silk suture of the peritoneum begins at the upper end and ends near the symphysis. He also uses silk in replacing the recti muscles and in suturing the fascia, and again for the skin. He aims to secure as much pressure as possible by the bandage over the region of the wound, so that no leakage from blood-vessels shall occur.

Puerperal Aphasia.—Loss of speech during the puerperium is one of the more rare complications, but its occurrence is so alarming to the family and its possibilities so important to the patient that the following notes on the subject will be of interest. M. A. McIntyre Sinclair (Lancet, July 17, 1902) offers the following conclusions on this subject. In considering the prognosis of puerperal aphasia one has to bear in mind many facts which apply equally to other forms of speech affection. The nature of the lesion, whether functional or organic, nervous or vascular, must be taken into consideration. But looking in a general way at cases one cannot help being struck with the large proportion of recoveries from a primary attack of puerperal aphasia. In some the loss of speech is of a very transitory type, in others complete or partial recovery ensues in the course of a few days, weeks, or months. He pointed out that the age of the child-bearing woman is an important factor, and the vascular conditions are mostly such as to allow of a quick resolution of a thrombus or the rapid opening up of a collateral circulation. A primary attack of puerperal aphasia, therefore, will often lend itself to a more or less favorable outlook. At the same time the liability to recurrence of the aphasia in the event of a subsequent pregnancy was emphasized. This unfortunate sequence of events took place in both of Finlayson's cases, in Bateman's case, and in the cases of Gignoux and Leven reported by Poupon. Moreover, the second or recurrent attack in each instance was of a much more serious nature than the attack recovered from in the first instance. In both of Finlayson's cases the secondary aphasia remained persistent and in one case was accompanied by permanent rigidity of the paralyzed limbs. Bateman's case, without the development of fresh symptoms, terminated fatally in six weeks. A recurrent attack of puerperal aphasia is therefore a serious matter and the prognosis is grave. Indeed, it is so bad that one must consider the question whether pregnancy ought to be allowed to recur. Poupon, in recognizing the liability to recurrence of the aphasia in a subsequent pregnancy, advises that the woman should be warned to avoid becoming enceinte in the future. The cases of Finlayson and Bateman bear further testimony to Poupon's advice. He would go even further and say that in the event of the patient again becoming enceinte the only justifiable course, according to present knowledge, is to terminate the pregnancy at the earliest possible moment. Such a procedure was actually carried out in his own case and there has so far been no recurrence of the aphasia. Much need not be said regarding the treatment of puerperal aphasia. This will depend to a great extent on the nature of the lesion and the attack must be dealt with on the same lines as guide one in the treatment of any other cerebral affections. It would be superfluous to add anything on this score. In addition to special indications for treatment it will in most cases be necessary to pay attention to the general health of the patient, and when signs of improvement manifest themselves to persevere with the reeducation of the faculty of speech. In regard to the latter point he insisted that the séances should not at first be too frequent and that care be taken not to fatigue the patient. sisted that the séances should not at first be too fre- In the event of a subsequent pregnancy he expressed the view that for purposes of prophylaxis it is strongly advisable to terminate the pregnancy at the earliest possible moment.

Chloride of Calcium for Bleeding from the Uterus.—Sometime ago Lafond-Grellety obtained excellent results in bleeding from the uterus by internal use of chloride of calcium. G. Gross of Nancy (La Sem. Méd., 1902, No. 22), acting on this suggestion, has also obtained very satisfactory outcome in four women who were suffering from bleeding from the uterus. The degree of cure was such that the women, who were very anemic and emaciated, gained flesh and strength and soon resumed their ordinary occupations. His method is briefly that the patient shall take daily a douche containing 10 parts of chloride of calcium and 200 parts of distilled water, preceded always by a cleansing douche. He at the same time considers it advisable to administer by mouth the following prescription: Chloride of calcium, 4 parts; peppermint water, 30 parts; distilled water, 90 parts; to be given in teaspoonful doses every two hours. He states that this combination of douche and internal medication are exceedingly satisfactory. The treatment may be maintained for a long time provided the kidneys are in good condition, as the chloride of calcium is readily eliminated.

PEDIATRICS.

Suppurative Arthritis Complicating Bronchopneumonia.—Very rare are suppurative articular complications in the course of bronchopneumonia, according to H. Bichat and R. Goepfert (Rev. mens. des Mal. de l'Enfance, August, 1902). When these occur they are due to different pathological agents, sometimes to the pneumococcus, sometimes to this associated with the streptococcus or staphylococcus and sometimes to the latter alone. The point of departure of pneumococcus infection is not always in the lung; a simple angina, a bronchitis or an otitis can be at first the only external manifestation of the infection. When the pneumococus invades serosa other than those of the articulations, *e. g.*, meninges, pericardium, the prognosis is grave; but when there is a simple monarticular complication, the proper treatment leads invariably to a rapid cure. Moreover, according to certain authors, the pneumococcus does not invade the joints until its virulence is attenuated. On the other hand the forms of arthritis complicated with infections of the serosa, generally terminate in septicopyemia and death. In all forms of arthritis, with or without complication, the treatment is to open wide the suppurating joints.

A Case of Achondroplasia.—As a text for furnishing a description of this disease, a case of achondroplasia is reported by J. COMBY (Arch. de Méd. des Enfants, August, 1902). This condition was first described by Parrot, in 1878, as a developmental anomaly of the skeleton, beginning in fetal life and affecting the bones that are developed in cartilage (hence the name). It is frequently confused with rickets. The characteristics of this disease are the great size of the head and the smallness of the form. The latter, which is known as nanism or dwarfishness, is due to the shortness of the lower limbs, the trunk remaining of normal size. This micromelia is characteristic and affects all the limbs in the same proportion. The thigh is shorter than the leg, and the arm is shorter than the forearm, which is the reverse of the normal relation. From the shortness of their extremities these cases have been compared by certain observers to the fox-terrier. From the ranks of the achondroplasics have been recruited the court dwarfs, for they are quite intelligent. Macrocephalus is an essential trait, closely simulating hydrocephalus. The head is globular with bosses on the frontal and parietal region. The face is large and the features are coarse. The root of the nose is flat, the tip large and rounded and the nostrils wide and gaping. The lumbar curve is exaggerated, and in women the pelvis is narrowed. Obesity is quite frequently observed. The weight is large for the size. The hand is reduced in all dimensions. The fingers are short, fleshy and nearly equal. The three middle fingers, by the wide separation of their extremities, form a trident. There is a marked curvature of the extremities. The musculature is remarkably developed. The genital organs are well developed. The lesion of achondroplasia is a dystrophy of the primordial cartilage which accompanies the first osteogenetic advance from the third to the sixteenth month. The ossification of the epiphyseal cartilage is arrested. The bones can no longer grow in length, although they increase in thickness by means of the periosteum. The bones that develop from embryonal tissue, as the clavicle, ribs, the frontal and parietal bones, are not affected in this disease. The disease is to be differentiated from rickets by the following features: In the former there is the characteristic achondroplasia, which is not present in the latter. The former begins during intra-uterine life, the latter several months after birth. In achondroplasia there is no deformity of the sternum, ribs and clavicle, which deformity is usually present in rickets. In the former disease the diaphyses are not notably curved. The cause of achondroplasia, according to Marie, is a general one, whose nature has not yet been discovered. Heredity occasionally plays a rôle. The treatment is nil.

Certain Causes of Death in Diphtheria.—A condition which has frequently been overlooked as a cause of death in diphtheria, according to M. H. BARBIER (Rev. mens. des Mal. de l'Enfance, August, 1902), is cardiac thrombosis. In the absence of an autopsy one is apt to assign the cause to toxic myocarditis, or to some lesion of the cardiac nerves or of the medulla, and all the more since these thromboses are incident during convalescence, and are often accompanied by paralytic affections. In 45 autopsies performed by the author on cases of diphtheria, he found thrombosis of the heart in 23. The seat of thrombosis is most frequently the right chamber; sometimes the thrombus occupies both right chambers, continuing up into the pulmonary artery, sometimes in the auricle or ventricle alone. Rarely are the thrombi found in the left chambers, or at least in all of them. The clots are yellowish-white, fibrinous, more or less stratified, containing but little serum, and closely adherent to the endocardium. They are evidently not formed after death, since the fatal termination is not a violent one, but occurs quietly with precursory signs. Of 19 cases examined bacteriologically, the thrombi contained the diphtheria bacillus in three, the streptococcus and diphtheria bacillus in three, the streptococcus alone in five, the staphylococcus in three, and both the streptococcus and staphylococcus in four cases. Is thrombosis of the heart to be attributed to the diphtheritic infection or to a septicemia? This question cannot be definitely answered. At any rate, on the tonsils and mucous membrane of the pharynx the fundamental action of the diphtheritic toxin is fibrinogenesis. The fact that thrombosis of the heart is an accident of convalescence, after the false membrane has disappeared from the throat, does not prove that the thrombi are not caused by the diphtheritic poison, for the pseudomembranous angina is but an incomplete and deceptive mirror of the pathological entity known as diphtheria. The diagnosis of thrombosis of the heart is a difficult one. Frequently its only manifestation is sudden death, but often it causes certain precursory signs. There is a general waxy, deathly pallor of the face and body, accompanied by coldness of the extremities. The child which has been playing on the previous days, sitting up in bed, suddenly becomes listless, lying motionless on its back. In certain cases there is a slight cyanosis of the lips and extremities. From this moment the pulse becomes small, rapid, thready, irregular and unequal. The heart-sounds are muffled, with or without modification of rhythm. That which completes the picture in certain cases is an expression of intense anxiety on the part of the child, associated with extreme agitation. There is no loss of consciousness. This condition can with difficulty be distinguished from myocarditis or bulbar paralysis. The prognosis is grave and the treatment nil. The author next discusses the effect of diphtheria on the progress of a tuberculosis, and finds that foci of latent tuberculosis are awakened parallel with the evolution of the diphtheria. Likewise the progress of a case of diphtheria is aggravated by a concomitant tuberculosis, and the cardiac accidents are more frequent and severe.

Scarlatina Hemorrhagica.—Hemorrhage into or from the mucous membranes and skin marks the extreme of severity in all infectious diseases, and when notes of instructive cases appear they are worthy of universal attention. The following case of peculiar interest is reported by V. C. DE BOINVILLE (Lancet, August 9, 1902). The patient, a boy aged four and a half years, was admitted June 21, 1902, and according to the mother's statement he fell ill June 16. The admission thus took place on the sixth day after the onset of the disease, which was characterized by the usual malaise, headache, sore throat, cough, and pain in the chest, rapidly followed by a diffuse scarlet rash. On admission this rash was still visible, but was fading and the fauces and throat generally were congested and foul. During the 24 hours following admission the temperature ranged from 101 to 102.4° F., falling gradually in the course of the next six days to 99.6° on the 27th. On the evening of this day, the twelfth from the onset of the disease, it rapidly rose to 103°, when grain doses of sulphate of quinine were administered every four hours. The temperature then again fell, reaching normal on the 1st of July. So far the case assumed a not unusual course. The patient during this period of observation was pale and rather weak; the pulse was somewhat feeble, but there was no reason to expect anything but a favorable recovery. The cervical glands were not swollen. There was neither thus far nor subsequently any albumin or blood detected in the urine. On July 2, however (and this is the special point in the case), just as desquamation was setting in, bleeding from the anterior nares commenced. Hemorrhagic spots, a dozen or so, measuring about three mm. in diameter, appeared on the anterior aspect of the scalp. Similar spots presented themselves in the neighborhood of the knee-joints. The evening temperature rose to 99.6°, and the patient became generally feeble; in fact, showed a tendency to collapse. Perchloride of iron applied as a styptic to the nose only partially checked the hemorrhage during its actual application. On the following day an eczematous rash appeared on the buttocks, and the spots thus formed bled on the slightest friction. Tincture of hamamelis was no more successful than the former styptic in allaying the obstinate epistaxis. Iron was administered internally, and brandy was cautiously exhibited. Posturing and other methods were of no avail in checking the bleeding. It must be remarked that the total quantity of blood lost was very small. The cause of anxiety was the symptom per se, suggesting a markedly impoverished or poisoned state of the blood, not an actual loss in quantity. Desquamation, which had commenced on the hands and feet, became entirely arrested. The patient grew progressively weaker and the temperature rose higher—never above 103.2°, however, which it reached July 6. Tepid sponging was now employed. On the 7th, at 3 A. M., the thermometer recorded 103°. Tepid sponging was again resorted to, causing the temperature to fall to 98.9°. At 10.30 A. M. the patient vomited, the vomit containing a little unaltered blood. At 11 A. M. he died in a state of collapse. The interesting feature is that the hemorrhagic symptoms did not appear at the onset of the disease, as in an ordinary case of scarlatina hemorrhagica, but at a period when convalescence was to be expected. In other words, a profound toxemia set in at a time when it was to be supposed that antitoxin in the ordinary course of events would be forming and immunity becoming established. Can it be that nature, as it were, surpassed herself in her process of healing, that the antitoxins had become excessive, and that a "reactionary antitoxemia," if one may use such a term, had set in? Or can it be that, after the supposed toxins had been sufficiently eliminated to permit of a fall of temperature and partial recovery, a fresh supply of toxins hitherto combined with other material, or otherwise rendered inert, had suddenly been let loose in the blood and set up a secondary toxemia?

Adherent Pericardium of Rheumatic Origin in Children.—A case of adherent pericardium is reported by L. BAUMEL (Arch. de Méd. des Enfants, August, 1902), in which marked rheumatic antecedents were traced, and in which cardiac trouble was present from earliest infancy. The rheumatic poison caused in the child not only pleural adhesions, but also adherence of the pericardium, whose layers, as seen later, although cemented together, were easily detached. The cementing substance was soft and feebly organized. The diagnosis of this condition depends on the following signs: An extended area of cardiac dulness, an undulation and retraction of the precordium, and above all a murmur, at times superficial, feeble and blowing, coexisting with or without an aortic insufficiency and hypertrophy of the left ventricle. These murmurs, most frequently generalized, result principally from the valvular insufficiency produced by simple dilatation of the orifices, to which may or may not be added valvular lesions. Very striking is the contrast between the hypertrophy of the left ventricle, as marked out by percussion, and the feeble impulse. One is also strongly impressed, as was the author in the case reported, by the general hemorrhagic tendency, as revealed by most of the extravasated fluids. Thus the yellowish ascitic fluid contained red blood-cells, the double pleural effusion was serosanguinolent, and sanguinolent foci were discovered in the substance uniting the two layers of the pericardium. There were also vast subcutaneous ecchymoses. There is apparently some connection between the condition of the heart and the hemorrhagic diathesis.

THERAPEUTICS.

Therapeutics in Hemiplegia.—Nobody has failed to notice that no matter how complete the paralysis after an apoplectic stroke, the patient, if he survives will always regain, sometimes to a considerable degree, the power to use his disabled members. It is only the most recent research in brain pathology that has disclosed the presence of a number of reserve motor tracts by means of which will-impulses reach the cord from the cortex if one pyramidal tract is destroyed. P. LAZARUS (Zeitsch. f. klin. Med., vol. 45. Nos. 3 and 4) states that the pyramidal tract is the only direct route, but the tract of the opposite side can vicariously assume its functions, the transmission taking place through the direct pyramidal tract or through the anterior commissure of the cord. In destruction of portions of the cortex a new formation of motor centers may go on in neighboring gyri. The fact that even the division of both pyramidal tracts is not followed by a complete paralysis points to the presence of a number of other tracts, one of which runs from the cortex to the optic thalamus, then to the nucleus rubra, and in the spinal cord occupies a position ventral to the lateral pyramidal tract. The optic thalamus can convey motor impulses downward by four other distinct tracts, and of these the most pronounced runs to the corpora quadrigemina and then downward in the anterior region of the cord. This generally escapes in hemorrhages into the internal capsules. There are also a number of other connecting links between the cortex and the basal ganglia. It thus follows that every extremity is connected with both hemispheres through direct and indirect, unilateral and crossed fibres. Impulses may also reach the periphery by passing through the corpus callosum to the sound side, or where only part of the capsule is destroyed, association-fibres may bring stimuli to neighboring centers which are still connected with the cord. The therapy is evident from these anatomical relations, and consists in training the reserve tracts. For this purpose the patient receives instruction in active motion. This is sometimes rendered easier by first passing a current through the affected limb. Passive, autopassive and symmetrical motions also do good, as they facilitate the proper coordination. Even the aphasia admits of treatment, probably through vicarious activity of the surrounding brain tissue or the opposite Broca's convolution, but this treatment is often unavailing in the sensory or mixed types. The patients should begin by saying the vowels and consonants aloud, and should then be made to name objects and repeat words. Electricity in the treatment of hemiplegia is of some value, but groups of muscles rather than single ones should be faradized to imitate as much as possible coordinated movements. From faradization of the head the author has seen little good. The treatment should begin early, as soon as the sensorium is clear and the temperature normal.

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SYPHILIS AND THE BRUSSELS CONGRESS.

THE questions discussed by the recent congress held in Brussels (see MEDICAL NEWS, p. 568) concerning the prophylaxis of syphilis and venereal diseases opened so many avenues of reflection that every one of our profession who reads the report of this congress should find himself stimulated to act along some of the lines suggested.

That thirty-four countries should have sent official representatives, and that there were not only physicians present but also men in high civic and state authority is a significant fact.

It shows that the nations' leaders are alive to an important situation and are seeking from one another scientific help for a better preservation of their peoples, and that the state stands ready to follow the advice of its medical teachers and to assist them in putting their accepted theories into practice. Such mutual concert of action by national, scientific and sanitary authorities can not fail to exert a tremendous influence for the betterment of physical and social conditions in all countries.

Apart from all moral considerations, many nations have awakened to the fact that if they would save their sons from infection and their posterity from degeneration they must check the spread of venereal disease and lay a controlling hand upon prostitution.

It was clearly brought out that as an economic measure time, energy and money could be devoted to the eradication of these allied evils with the greatest possible advantage; but it was also evident that no nation or state had as yet any practical measure to recommend that would apply equally to other communities. Measures that had been found most efficacious in small cities, such as Breslau or Strasburg, were scouted as impracticable in a city like London, where a hundred thousand prostitutes would need control. Legal restrictions that had proven vastly beneficial under a partially autocratic government where the police force was expected to carry out the law, as in many German cities, were deemed wholly inapplicable to a city whose police force was as corrupt or corruptible as that of New York. Again, laws that had served well for Paris, by keeping her streets clear from prostitutes, and had partially segregated this class, were denounced by the abolition party as wholly immoral.

The reports of all physicians of large clinical experience or in sanitary posts showed how difficult it is to induce the infected to be treated if there is the slightest burden of restriction laid upon them, and how like thistle-down in its evasiveness is the prostitute class. Those who agreed that the victims of such diseases should be treated at public expense and strictly controlled by law could not suggest any system of regulatory laws which would not by their very machinery defeat their ends.

Viewed in a general way, the congress was a grand success; it has become a permanent organization; has had permanent endowments from a number of governments, and its continued efforts offer much promise of some concrete ends in the not far distant future. Syphilis and prostitution are not to disappear in a day, perhaps never; but that there is hope offered in the deliberations of such a body is undeniable.

THE LAY PRESS AND SCIENTIFIC RESEARCH.

WITH their brief preliminary announcement before us of the work of Drs. Duval and Bassett on the germ of summer complaint in children, we note their statement that they make no claim of discovery, but merely of having done confirmatory work at the Thomas Wilson Sanitarium for Children near Baltimore. It is therefore of interest to ponder the effect of such a blare of trumpets as that in the lay journals of last week upon the medical profession itself, as distinct from its effect on the public, and to consider briefly the present stage of the world's knowledge regarding the highly important line of investigation brought so sharply to our attention by the announcement from Baltimore.

The demoralizing influence of newspaper sensations of all kinds is almost inestimable, and is particularly injurious when the lay press undertakes to invade the scientific world for the purpose of noting its progress and proclaiming its advances. But these effects have been discussed many times. Equal attention has not, however, been given to the harmful influence of the sensational press upon medical men.

The deleterious results of the incident so fresh in our memories promise to be unusually serious. The fact that the heralded "discovery" was made under the auspices of Johns Hopkins University, and was coupled with the name of a man who is honored and respected by every physician in the nation, will cause much credence to be given to the garbled reports. Naturally, from the afflicted all over the country will come a demand for the use of this latest scientific method; for the public is certain to accept the newspaper assumption that ability to cure immediately follows the success so blatantly published. The circumstances surrounding fatal cases of summer diarrhea in children are so trying that the revulsion of feeling on the part of parents and the public when physicians confess their inability to perform the wonders so widely advertised is certain to bring loss of confidence in the profession.

But the damage goes even deeper. It penetrates to the precincts of the laboratory, where the young investigator, seeing that these journalistic frenzies contain the names of men he knows to be of recognized respectability—some of them men of eminence—is in great danger of mistaking notoriety for reputation, and is sorely tempted to taste the ephemeral sensations of the former, at the risk of blighting a useful career.

That in this particular case there was collusion between the press and the medical men named, no well-informed member of our profession for a moment suspects. We state by direct authority that nothing is more regretted than that any hint of the work or its results has become known, and that every precaution was taken to prevent publicity until all results had been thoroughly gone over and verified, when the announcement would have been made through the proper scientific channels.

No great discovery in any branch of science has ever been the work of a single individual. However prone we are to applaud those who bind up the sheaves, we still must give some honor to the men who plow and sow. In science a patient worker here and there isolates a fact, the way slowly clears, and at last a Lavoisier gathers up the data, and makes a wonderful discovery. We do not rob the compiler of facts, nor the last investigator who has obtained his results in the light of preceding workers, of one iota of the fame justly his, when we ask that due credit be given to all that have contributed their minor successes to a final grand result.

No branch of bacteriology can boast of more investigators than are listed in work upon the gastro-intestinal flora. So little is actually known of the gastro-intestinal bacteria, and so much havoc arises from this tract, that every properly conducted investigation is almost sure to bring out a discovery. This is indeed the field wherein we are called upon to study not only an indigenous flora, but also the exotics, and to philosophize upon the effect of their association, their hybrids and the innumerable combinations between the varying intestinal contents and the divers toxins generated by these heterogeneous guests. Well spoken are the words of an eminent bacteriologist when he says that "two hundred years of hard study are yet to be given to the intestinal flora." When we look back we see the names of Klebs, Giegler, Chautiness, Widal, Maggiera, Ogata, Shiga. Even as early as 1883 Prior had worked and contributed to this subject. These are the pioneers; and the laboratories of France, Germany, Russia, Italy, England, Japan and our own country have not been idle in their efforts to find etiological factors of disease in bacteria of the alimentary canal.

On the diarrheas of infants we also owe much to the labors of Lesage, who has greatly advanced the work in this line, and has perhaps reached the climax of the research. Lesage is a member of Dr. Roux's laboratory staff in the *Institut Pasteur* (Paris) and *chef de clinique* in the *Hôpital Rousseau.* His work goes much further than the isolation and identification of the microbe of summer diarrheas of infants, as it includes the serum treatment of the disease. The hospital records of patients treated with this serum point to encouraging results. Lesage's work clashes in no respect with the results obtained at Baltimore, because in the preliminary note sent out by Drs. Duval and Bassett no claim for the discovery of a new microbe is made, but simply the finding of the *bacillus dysenteriæ* (Shiga) in the stools of infants suffering with summer diarrhea. The microbe was isolated by K. Shiga in the course of his investigations upon dysentery in Kitasato's laboratory at Tokyo. Whether this bacillus has been proven with certainty to be the cause of the disease, we shall doubtless be informed when the full report is given to the medical press.

That original work has been done, and that new and useful facts have been added to our knowledge, we do not entertain the slightest doubt.

BELLEVUE, THE PROFESSION AND THE PUBLIC.

THE first official report of the trustees of Bellevue and Allied Hospitals (Harlem, Gouverneur and Fordham) is in the hands of Mayor Low. This report covers the period between February 1, when the present department was organized, and June 30 of the current year.

The trustees have placed the community under obligations to them in two particulars. In the first place, they have inaugurated administrative reforms and effected minor improvements which make for efficiency of service. They have put in order the affairs of the insane pavilion at Bellevue by providing a better medical and nursing service and by making such arrangements with the Charities Department and with the State authorities as to lessen the demands on this overcrowded division of the hospital. They have improved the nursing system in the male wards at Bellevue, have provided a more thorough training for the hospital internes; have sought and, so far as their means permitted, followed the advice of the Fire Department, the Health Department and the Board of Fire Underwriters in matters relating to the safety and the sanitary equipment of the hospital.

In the second place, the trustees have had the good sense to perceive and the public spirit to assert that, notwithstanding the improvements which have been and may yet be made, Bellevue and the other hospitals named are and will continue to be a disgrace to the city until new public hospitals are provided for central Manhattan, Harlem and the Bronx. The trustees very properly demand that the city provide a group of institutions designed according to modern ideas for the care of the sick and the suitable accommodation of the hospital attendants.

The facts which justify the demands of the trustees—we might almost say the demands of decency—can only be briefly referred to here. Bellevue was erected as an almshouse in 1817, and converted to hospital uses in 1846. The building is a fire-trap; its plumbing is unsanitary; its sleeping-rooms and dormitories for house staff and employees are overcrowded and unwholesome; there is no room for the proper examination and classification of patients on admission; food for the patients cannot be cooked or served properly; ventilation of many sections is inadequate. As a result of the poor pay and worse housing of employees, "from 40 to 50 per cent." of them "are discharged for incompetency or drunkenness every month, and their places filled by others equally unfit!" Of the old wooden dwelling-house called by courtesy Harlem Hospital, and the wretched Fordham Hospital, the less said the better. At Fordham Hospital an open lot serves as a crematory, and for lack of laundry facilities patients' washing is sent to Bellevue. It is difficult to imagine that these institutions figure at all as part of what is or ought to be a great system of public hospitals.

Public indifference is in part responsible for the toleration of Bellevue and its allies, but the medical profession of New York must shoulder its share of the blame. Notwithstanding the deplorable conditions of its purely public hospitals, New York is regarded as a fairly progressive city in matters of public health, and its hospital accommodations as a whole are not bad in comparison with those of Paris, London, Berlin or Vienna. But our best institutions are private foundations, supported to a very small extent by public funds, while our public or communal hospitals are such as we have just seen. Right here is the explanation of the conditions at Bellevue. Our best citizens are nearly all interested in hospital work, but each is concerned for the welfare of some particular private hospital doing public service. Hundreds of influential physicians and surgeons devote a large part of their lives to hospital work in Manhattan and the Bronx, but the professional opportunities of the younger and more active men are bound up with the development of hospitals which are not directly under public control and support. The bulk of our citizens find what hospital accommodations they require in these private and semiprivate institutions. In their own lives they are not touched by the conditions prevailing in our public hospitals. Bellevue and its allies are abandoned to a wretched isolation because most of us do not need them, or because we are doing what we conceive to be our duty as citizens and physicians in other directions. We have a new Presbyterian hospital, a new St. Luke's, a new St. Vincent's, a new Mt. Sinai, and an old—Bellevue! Our citizens are glorified, and our city is disgraced.

The trustees of Bellevue and Allied Hospitals have done their duty. Mayor Low has expressed his views in regard to the contagious disease hospitals in such a manner as to convince us that he cannot be blind to this other public need. An enlightened executive should have the support of an enlightened medical profession and the sanction of a conscientious and public-spirited citizenship. A new hospital for Harlem and one for the Bronx have already been authorized. A new Bellevue is the greater need, and the authorization is yet lacking. It lies with the medical profession of the city, through its established and powerful organizations, to create and sustain a popular sentiment which will make Bellevue a credit instead of a disgrace to New York.

Will the profession do its duty?

RADIAL ACTIVITY OF MATTER.

The newly discovered property of matter, radial activity, which has been described by M. Henri Becquerel, opens a new field for study in physiological chemistry. In a most readable article by Prof. Duncan published in the August number of Harper's Magazine, a few of the physiological and chemical actions of these Becquerel rays are mentioned.

They will change bichlorid of mercury into calomel, yellow phosphorus into red and oxygen into ozone. They spontaneously render the air a conductor of electricity, so that electrically charged bodies are discharged upon the approach of material possessing this radial activity. A pinch of radium chlorid, which possesses this new property to a marked degree, was sealed in a test-tube by Prof. Curie, who then placed it in a cardboard box, which he fastened to his coat-sleeve. When the box had been in that position for an hour and a half intense inflammation of the arm was found to have set in. This was followed by a suppurating wound which required three months to heal.

Any substance placed near radium chlorid acquires radial activity. This is so marked that it is inadvisable to keep radium chlorid in the laboratory. Even the clothes and body may become so charged with Becquerel rays that experiments cannot be undertaken until the power has been expended. Sometimes this requires several days. Innumerable questions must arise in the mind of the scientist which may lead to endless experiments with radial activity and possibly give to the armamentarium of the physician a strength never before realized. The bacteriologist, the physiologist and the therapeutist, as well as the chemist, have here a new inviting field for labor.

That there is such a property of matter as radial activity, and that these light-rays are not, like phosphorescence, acquired by exposure to sunlight, but denote an active property of matter itself, is proven beyond a doubt. Becquerel rays are found to be composed of two kinds of rays existing together. One set of rays can be deflected by a magnet, being therein similar to cathode rays, while the other set, being undeviable, resemble X-rays. The significance of this can only be conjectured.

The distinguished French ophthalmologist, Professor Javal, who is himself blind as the result of chronic glaucoma, has recently been experimenting with certain of these radiant metals, with the idea of their possible use for diagnostic purposes in eye-diseases, as well as for enabling blind persons to see certain objects. When the ocular media are obscure it is sometimes very important to know whether the nerve-endings in the retina still possess the power of perception. The radiations from these metals can penetrate opacities of the lens and produce sensations of light in the retina. Moreover, in cases where there are also disturbances in the vitreous body these radiations penetrate to the retina and produce their effect. Dr. Javal's work may prove of more practical significance than has been thought, and careful following of the subject may give another auxiliary to ophthalmology.

Another generation may see as wonderful advances in medicine and surgery as the last has seen, and much of this progress may be due to the discovery of radial activity.

ECHOES AND NEWS.

NEW YORK.

Public School Inspection.—As a result of the unusually rigid medical examination to which pupils of the public schools are being subjected this year, almost 2,000 children have already been excluded, although the work of inspection is barely more than half through. For five years there has been a scheme of medical examination in the schools, but at the beginning of the present school year President Lederle of the Board of Health made up his mind that it was not thorough. He had a large number of school medical examiners on his rolls at $30 a month each. He discharged two-thirds of them and raised the salaries of the remaining third to $100 a month. Each school medical examiner has three schools now to attend to. He goes to the first school at 9 o'clock in the morning, inquires of the principal whether there are any cases requiring his attention, and if there are, attends to them. He does the same with the second school, but on arriving at the third school on his list makes a tour of each room and examines every pupil in it. The next day one of the other schools is examined in the same way and the third day the other one gets this thorough attention. The result of this system is that every public school pupil in the city of New York is examined every third day by a physician employed by the Board of Health. That before half the pupils have been examined almost 2,000 children should have been found suffering from one or more diseases shows, in the opinion of Dr. Lederle, the necessity for the stringent measures he has taken. Under the old system less than 10 per cent. of that number would have been found by this time, and most of them might have gone through the school year spreading their afflictions without being discovered.

Mayor Low on the City's Health.—During the first six months of the year, according to the Mayor, with a force of inspectors smaller than a year ago, the Board of Health made 51,500 inspections of plumbing, against 48,000 last year. Of condemned food, 6,500,000 pounds have been destroyed in 1902, as compared with 3,500,000 pounds during the same period of 1901. The fines collected in the first six months of this year for attempting to sell impure milk have been $6,500, as compared with $2,500 a year ago. The epidemiological side of the board's work has not been neglected. As many as 16,000 cultures, so called, have been examined during the last six months, and the system of culture collection and report thereon has been reorganized and extended all over the city, so that physicians obtain the information they need much more promptly than heretofore. The department has also treated directly with antitoxin 411 cases of diphtheria in the poorer tenement-house districts, and these show a very low mortality. The vaccinating corps performed 700,000 vaccinations in the first six months of this year, as against 300,000 in the spring of 1901. As a result the threatened epidemic was held in check. Perhaps the most important part of the Mayor's recent "Talk" on this subject relates to the city's need of more hospitals for infectious diseases. He says: "London has 6,500 beds for the treatment of infectious disease, or one bed for each 1,000 of population. The city of New York has only 750 such beds, or one for each 5,000 of population. London is engaged in adding 1,500 beds to its present supply, and New York, through an issue of bonds authorized this year, is adding 225 beds. In London this year, out of nearly 20,000 cases of infectious diseases, nearly 88 per cent. were treated in hospitals. In New York only 9.5 per cent. were so treated. Modern sanitary science demands the increasing treatment of infectious diseases in hospitals, and New York can no longer afford to neglect this great element of safety. Until bonds were issued for the purpose this year there was absolutely no provision made either for disinfecting plants or for the treatment of infectious dsease in the three boroughs of the Bronx, Queens and Richmond, having together a population of 500,000 people." The work of Dr. Lederle in improving the condition of North Brother Island receives grateful recognition.

PHILADELPHIA.

To Improve Meat Products.—The Philadelphia Commercial Exchange has recently established a bureau of meat inspection within its membership, an official meat inspector and a committee on provision inspection having been appointed. Inspection of all meats consigned to members of the exchange will be made.

Dr. Marshall to Relinquish Deanship.—It is reported that Dr. John Marshall, dean of the medical faculty of the University of Pennsylvania, will this fall decline reelection to that office. Dr. Marshall succeeded Dr. James Tyson eight years ago. He will hereafter devote his time to instruction in chemistry and toxicology.

The Typhoid Situation.—For the week ending September 13 there was one more case and five more deaths from this disease than during the preceding week. A report to the Board of Health shows that 34 cases now under treatment here were contracted outside the city, 15 at Atlantic City, 12 in other cities and seven in the country.

Adulteration of Milk in Pennsylvania.—Of 38 samples of milk recently taken in York by agents of the State Dairy and Food Department, 50 per cent. were found to be either adulterated or preserved with boracic acid or formaldehyd. At Easton and Allentown 56 samples were taken, and sufficient evidence was obtained from analyses to justify suits against 10 dealers.

American Pharmaceutical Association.—This association held its 50th annual meeting at Philadelphia September 8-15, both the scientific and social programs being of an order befitting the semicentennial of the society. Among the general subjects discussed were the reduction of the tax on alcohol, "cut-rate" prices on proprietary medicines, and the memorial to the late William Proctor, Jr., of Philadelphia, the "Father of American Pharmacy," who died in 1874. Of especial interest was the historical exhibit of drugs, fixtures, chemicals, books, etc., illustrating the advances of 50 years in the sciences related to pharmacy.

Consumptives at Philadelphia Hospital.—Somewhat sensational reports have lately been circulated regarding the contraction of tuberculosis by resident physicians and nurses of the Philadelphia Hospital. This is claimed to be due to improper facilities for the isolation of such cases. Whatever truth there may be in this statement, there is no question as to the urgent necessity of a separate building for the more than 400 tuberculous patients now in the hospital. An appropriation of $80,000 is now available, but delay in selecting a site for the building has retarded its erection. One of the directors favors keeping recoverable patients at White Haven at the expense of the city by coöperating with the Free Hospital for poor consumptives.

The Value of Diphtheria-Antitoxin.—At the opening meeting of the County Medical Society, September 10, Dr. M. H. Fussell read a paper on this subject. Such a paper, he said, was not superfluous, seeing that a physician of this city with a large practice and in charge of a hospital ward stated recently that antitoxin was a failure and that within 10 years all antitoxin syringes would be thrown into ash-barrels. There has been no change in the type of the disease since antitoxin was first employed, and the lowered mortality from diphtheria must be due to its use. The apparently high mortality in some cities can be explained by the fact that many cases are not reported, to prevent placarding, and that the antitoxin has been used late in the disease. Dr. Fussell gave his personal experience gained during 18 years' practice, detailing some cases as ordinarily treated before the advent of antitoxin and contrasting them with cases now treated by that method. Formerly every case that began with laryngitis resulted in death. In all cases it was simply a question of the amount of poison received and the resistance of the individual. Since the use of antitoxin he has lost but one case, that patient dying in eight hours after being seen. Every case of laryngitis has recovered. All cases are examined bacteriologically, hence antitoxin does not get credit for curing follicular tonsillitis. A case was detailed to illustrate the error of giving one dose and not repeating it once or twice if no improvement follows, and also to show the value of giving antitoxin late in the disease. If the following rules were followed by all, the mortality would be about nil: (1) Always make cultures from the throat; (2) in doubtful cases give antitoxin at once; (3) in true cases give 2,000 units and repeat in six hours if there is no improvement, and give 2,000 units every 12 hours thereafter until relief is obtained. Dr. G. E. de Schweinitz stated that the management of diphtheria of the conjunctiva had been entirely revolutionized by the use of antitoxin. All cases can now be saved if recognized early. If antitoxin is not employed some lesion of the eye—blindness in many instances—will remain. In these cases it is little short of criminal not to administer antitoxin.

CHICAGO.

Delays are Dangerous.—The Health Commissioner believes that as parents are compelled by law to send their children to school, it is the duty of the Board of Education to provide pure water for the children. The idea of individual children carrying bottles of sterilized or distilled water to the classroom! It is a demonstrated fact that typhoid fever is more prevalent in Chicago than it ever was except in the epidemic years of 1890-'91-'92. There were 194 deaths from typhoid in August, which is the highest August record ever made by the disease in the city's history. In the first six days of September there were 48 typhoid deaths; in the first six days of August, 22, an increase of nearly 120 per cent. The Board of Education should face these alarming conditions squarely and at once. Delay is dangerous. The situation demands immediate action.

Increase of Typhoid Fever.—Since August 2 there have been 249 deaths in the city from typhoid fever. The disease is spreading to every quarter, and the water-supply from all sources is so frequently and generally polluted that the Health Department deems it proper to refrain from characterizing any supply as "good" on any given day. There is nothing mysterious about this increase of typhoid. It is due to the polluted water-supply. What is puzzling is the fact that the supply should be so polluted during unusually dry weather. Nearly eight years' continuous observation of the water-supply and the conditions affecting it, during which upward of 160,000 chemic and bacteriologic examinations have been made by acknowledged experts, had resulted in the formulation of a belief in the laboratory that rainfall was the most potent factor in the pollution of the city water. Heretofore in dry weather the water was uniformly "good;" heretofore a rainfall of three-quarters of an inch in 24 hours—a quantity sufficient to flush out the sewers—was uniformly followed by pollution of the water. And such pollution was as uniformly followed by an immediate increase in the deaths from intestinal diseases, and later by an increase of typhoid—the former culminating, unless there was an intercurrent pollution, in about two weeks and the latter in about five weeks. For years charts have been constructed in the department showing the relation of these three factors—rainfall, water-pollution, increased death-rates from diseases caused by impure water. They have followed each other, up to the present time, with what the London Lancet has styled "almost mathematical precision." But during August, 1902, and thus far in the present month there has been no sewer-flushing rainfall, the greatest amount in 24 hours having been only 0.57 of an inch (August 13), and the total for the whole month being little more than one-half the average quantity during the last 53 years. Yet the water, on an average, has been worse than during any August since these observations were begun.

GENERAL.

Vaccination Before Marriage.—A Norwegian law requires the prospective bride and groom to show evidence of vaccination before marriage.

Scientific Expedition to Africa.—The Liverpool School of Tropical Medicine will this year send its eighth expedition to Africa for the purpose of studying the presence of trypanosoma in the human blood.

Massage by the Blind.—A Leipsic physician expresses the opinion that on account of their delicate sense of touch blind persons are specially qualified for practising massage. In Japan this is done very largely by the blind.

The Huxley Lecture.—Prof. W. H. Welch of Johns Hopkins sailed on the 19th instant for England, where he goes by invitation to deliver the Huxley lecture. The lecture will be given October 1 at Charing Cross Hospital, and Prof. Welch will return during that month to his duties in the University.

Prof. Loeb in San Francisco.—Dr. Jacques Loeb, Professor of Physiology at the University of Chicago, has gone to San Francisco to carry on his investigations in relation to the chemistry of life. He is the guest of President Wheeler of the University of California, and, although no official announcement has been made, it is believed that the eminent scientist will be induced to accept a chair at Berkeley and make his home in California.

Statistics of Cancer in Germany.—The German commission which, under the direction of Leyden, commenced in October, 1900, its investigation of the prevalence of cancer in Germany has recently issued its first report. From this it appears that 4,430 men and 7,714 women have been treated for that disease in the German empire; the proportion being 245 cases to each million inhabitants. Cancer of the digestive tract represents 70 per cent. of the total number of cases.

They Spread Smallpox.—Health Officer Friederich of Cleveland, O., has issued an order that in all families where smallpox is discovered, and where there is a dog or a cat, the animal must be killed. Dr. Friederich has contended for some time that cats and dogs are the most frequent distributors of smallpox that can be found. The hair of either animal may become filled with the contagion, and then a child may play with the pet. The result is another new case of smallpox. If the dog is permitted to run at large the danger is more than doubled.

Consumption of Sugar.—The people of the United States now consume eight times as much sugar per capita as they did in the first quarter of the last century, four times as much as the average during the decade ending with 1850, and twice as much as they did in any year prior to 1870. Increase in the consumption of sugar is not confined to the people of the United States, but seems to have been equally rapid in other parts of the world, judging from the figures of total production. The consumption per capita of sugar in the United States is greater than that of any other country except the United Kingdom. In England it ranges from 85 to 91 pounds, against from 60 to 68 pounds here, the consumption for 1900 in the United Kingdom having been 91.6 pounds.

The Sultan's Hospital.—"The finest hospital I ever saw is owned by the Sultan of Turkey, and the way it is conducted is a revelation as to the humanitarianism of the Sultan, for whom it speaks well," said Dr. Nicholas Senn of Chicago, who has just returned from a four months' European trip. It is a private institution, run entirely at the expense of the Sultan, and is principally for women and children. No payment is accepted by the hospital for treatment of any cases which come into its care. There are even 16 beds for foreigners and strangers. All a stranger in Constantinople has to do if he is ill is to get a note to the hospital authorities from the minister of the government to which he claims allegiance, and the hospital gladly does the rest. As companions on his round of visits to the hospitals of many countries, Dr. Senn had Dr. Wylie of Paxton, and Dr. Finch of Champaign, Ill. The primary object of Dr. Senn's trip to Europe was to attend the international Red Cross conference at St. Petersburg.

Death from Laughing-Gas.—Deaths from gas administered to persons who are to have teeth extracted have become so rare in this country that a fatal case in a dentist's chair in Paris last week excited a great deal of interest among dental surgeons. While the cable despatches telling of the death of a young American woman gave no particulars, dentists here say that it was due to asphyxia, although they are not prepared to blame the French dentist until they have heard the facts. There have been only about a dozen deaths from laughing-gas in this city since gas was first administered in 1844. In recent years there have no deaths. Dr. C. S. McNeille, head of the Colton, Dental Association, in Cooper Union, which has a record of 216,000 cases since 1864, says that the association has never lost a case, and is confident that it can successfully give gas without fatal results in any case.

Maus on Cholera in the Philippines.—Lieutenant-Colonel M. P. Maus, of the Medical Department, who has lately been relieved as Commissioner of Public Health ior the Division of the Philippines, arrived in San Francisco last week. He has had entire charge of the fight against the cholera epidemic in the Philippines since its outbreak in March of this year. Dr. Maus is very hopeful of the situation and thinks that the worst is over. He made this statement: "Just before I left Manila, on August 7, the city's daily death-rate from cholera was about 25. The cases were found almost wholly among the poorer classes of the natives and in what is known as the Nipa district. The contagion never reaches the Americans except as a result of indiscretion on the part of the victims. The disease is taken in through the mouth, generally in food or water. Cholera was brought to the Philippines from Hongkong by ships. I had charge of the first two cases reported, and traced their origin to some vegetables that had been thrown overboard from a Hongkong steamer and picked up and eaten by natives. I instituted the most rigorous measures to prevent an epidemic, but owing to the attitude of the natives this was impossible. They are pretty much all fatalists, and disregard sanitary regulations when they can do so without danger of arrest. Sterilized water was supplied to every family in the city. They would sneak through the quarantine lines at every opportunity and eat all kinds of food. While I was there about 1,700 cases were reported, of which 90 per cent. were fatal. The epidemic had spread all over the archipelago. Had the Americans not been there the results would have been as direful as in 1882 and 1888. We fought the disease as hard as we could, and could we have obtained the cooperation of the Filipinos themselves there never would have been an epidemic."

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

HEMORRHAGE DURING PREGNANCY—REPORT OF THE COMMITTEE OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM ON RECOMMENDATIONS WITH REGARD TO COMPULSARY EXAMINATION OF THE HEARING IN SCHOOL CHILDREN—HEART DISEASE IN CHILDREN—TENDON-TRANSPLANTATION IN INFANTILE PARALYSIS OF THE LOWER EXTREMITY—ON THE PERIPHERAL THEORY OF NERVE-REGENERATION WITH SPECIAL REFERENCE TO PERIPHERAL NEURITIS.

The transactions of the British Societies have been up to their standard of scientific research. The following notes are taken from the more important of the meetings:

R. JARDINE of Glasgow, at the Edinburgh Obstetrical Society, July 9, 1902, opened a discussion on "Hemorrhage During the Later Months of Pregnancy and Early Stages of Labor," as follows: Unavoidable hemorrhage arose from the separation of an abnormally situated placenta; that was, one entirely or partly attached below the retraction-ring. As soon as dilatation began separation must occur, and this separation meant the opening up of sinuses and consequent hemorrhage. In the central variety the entire placenta must separate, and very severe hemorrhage result; in the lateral variety the greater part of the placenta must separate, and severe hemorrhage also occur; while in the marginal variety, when only a small portion was below Bandl's ring, the bleeding would not be great. This last was probably more frequent than was supposed, and was the cause of slight hemorrhages in the early stages of labor. In the treatment of unavoidable hemorrhage the viability of the fetus must be considered. If not viable, palliative measures should be tried, unless the hemorrhage was very severe. Absolute rest in bed, with perhaps an opiate, and attention to the bowels and diet were all that might be required. Styptics were of no use. The patient and friends must be warned to give notice at once of any recurrence of bleeding. Unfortunately, many women were so accustomed to large losses of blood that they were not easily alarmed, and they might delay until it was too late. If the fetus was viable and the hemorrhage severe, active treatment must be carried out. The most efficient way to stop the bleeding was plugging. If the os was but slightly or not at all dilated, plugging should be resorted to if possible—insertion of one plug into the os, and then packing of the vagina till it was completely filled. If the os was dilated sufficiently, a Barnes or a Champetier de Ribes bag might be used; but if the os was dilated sufficiently to permit the entrance of one of these, then it would permit the performance of bipolar version, in a head or transverse case, so as to bring a leg down into the vagina. In a breech-presentation one leg should be brought down as soon as possible. The plug should be removed in a few hours, and then the os was usually found dilated to permit of further treatment. Once a leg was down, gentle traction would control the hemorrhage. The labor should not be hastened after this, as forcible traction of the child through an os not completely dilated would produce laceration of the cervix, with very serious hemorrhage, owing to its special vascularity in this condition. If the os was quite dilated, delivery should be effected as quickly as possible by version or by forceps. If the placenta was central, the hand must be passed through or round it. Stripping off the placenta was useful, as it allowed dilatation of the os to occur more easily. In the marginal placenta previa the membranes might be punctured and the uterus stimulated by friction till the placenta was pressed on by the presenting part.

After the birth of the child, if the placenta did not come away at once it should be removed. If postpartum hemorrhage occurred, ergotin should be given hypodermically and pressure applied bimanually. Hot-water douching was of questionable advantage, as it might wash away the clots out of the sinuses and so promote hemorrhage. Dr. Jardine had of late been using 30 grains of suprarenal gland to the pint for douching, and it seemed to have a good effect. But if there was any tendency to postpartum hemorrhage he invariably plugged the uterine cavity, the cervix and the vagina. Reference was then made to the operation of Cæsarean section in placenta previa as first proposed by Lawson Tait. Eight cases had thus been treated by Cæsarean section or Porro's operation; five mothers and six children were saved. Two cases were hopeless before operation. But even omitting these two, the resulting mortality was much higher than in cases treated by other methods, where there was a mortality of about 1 in 20. The treatment by abdominal section seems unjustifiable. Accidental hemorrhage might be external or internal. In the external, if the uterine contractions were active then the membranes should be ruptured and the uterus massaged or a tight binder applied. If the bleeding continued, the uterus should be emptied as soon as possible by turning or by forceps. Dr. Jardine referred to the Rotunda method of plugging and the reasons adduced for its use, but he could not agree with their theory. In these cases the uterine wall was not in a normal condition. If strong contractions were occurring, plugging might be used, but if there were no contractions there would be great risk in converting an external into an internal hemorrhage. He had seen one case in which this happened with fatal result. If the hemorrhage was severe, the uterus should be emptied as quickly as possible, the os being dilated by hand or by a Champetier de Ribes bag. As soon as the child was born the hand should be inserted into the uterus and the placenta and clots removed. If postpartum hemorrhage was occurring, ergotin should be given and the uterus plugged. The plug could be wrung out of suprarenal extract solution. A saline infusion should be given if much blood had been lost, or if there had been much shock. Concealed internal hemorrhage was the most fatal of all forms. Rupturing the membranes would only make more room for blood to be poured out, and delivery by accouchement forcé was not very hopeful if the hemorrhage was severe. In Dr. Jardine's experience of many cases such treatment was disastrous. He favored removal of the uterus by Porro's operation. A helpful symptom in diagnosing this condition was that the patient complained of severe continuous pain in the abdomen. If the condition was recognized early the membranes should be ruptured before there was sufficient bleeding to cause collapse. Another source of hemorrhage in the early stages of labor might be a commencing spontaneous rupture of the uterus, but it could not be diagnosed until the rupture had occurred, when abdominal section and removal of the uterus should be carried out.

On the 14th of last April, the Otological Society of the United Kingdom appointed a committee to draw up recommendations with regard to the compulsory examination of the hearing of school children. At the meeting of the society held in Dublin, May 31, the following report of this committee was unanimously adopted: "The committee appointed to consider the desirability of securing for the children of the poorer classes systematic detection and treatment of ear-disease, and to report at an early date to the society, having carefully considered the reports submitted and the experiences recorded at the special meeting held April 14, have arrived at the following conclusions: (1) That there exists amongst the children of the poorer classes a very large amount of ear-disease which is preventable and curable; (2) that it is not sufficiently recognized that ear-disease in childhood tends to a considerable loss of hearing, health and life, that it militates against a child's education, and that later on the subjects of it are seriously hampered in their life's work, and often incapacitated for the services of the state; (3) that ear-disease in children is often not treated, partly owing to neglect, partly to ignorance and to belief in popular fallacies, but more especially to an inability on the part of parents and teachers to detect it; (4) that any scheme having for its object the security of children against the consequences of ear-disease, to be efficient, must provide for thorough and systematic examination and treatment; and (5) lastly, having regard to the national importance of the subject, they recommend that a memorial embodying this report be submitted to the President of the Committee of the Council on Education."

A. E. SANSOM, at the Society for the Study of Disease in Children, June 21, 1902, presented an interesting paper on "Heart-Disease in Children." He said that the affections of the organ were chiefly but not always rheumatic, and were infrequently associated with painful and diseased joints. The chief groups of them were: (1) The temporarily swollen and enlarged heart of rheumatism; (2) the heart of rheumatic pericarditis; (3) the heart of rheumatic endocarditis with resulting valvular disease, and (4) the heart of slow and insidious rheumatic endocarditis inducing mitral stenosis. Dr. E. Cautley showed a specimen of atresia of the conus pulmonalis and patency of the septum ventriculorum. The child died at twelve months of age from cardiac failure during an attack of dyspnea. Dr. Cautley thought that cases of congenital heart-disease should be divided into two groups—those due to developmental error and those due to fetal endocarditis. Occasionally the two factors might be coexistent. He regarded congenital syphilis as the first cause of developmental error. Dr. Theodore Fisher of Bristol regarded pericarditis as the most striking feature of heart-disease in children. Dilatation, slight in amount, occurring in rheumatism was not serious. He thought that myocarditis and pericarditis showed that the whole heart was poisoned. He agreed with Dr. Cautley's classification of congenital heart-disease. A patent foramen ovale was very common and could be found in one-fourth of adult necropsies if it were looked for.

W. P. MONTGOMERY read a paper on "The Results of Tendon-Transplantation in Twenty-five Cases of Infantile Paralysis of the Lower Extremities." The cases were classified into various groups, and the results of the various methods employed were given. The work of reeducation was often very slow, but the final state was good. A number of cases were shown in the wards prior to the meeting. Dr. C. N. Gwynne of Sheffield read the notes of a case of infantile paralysis of the leg which he had treated by excision of the knee, the ankle and the tarsal joints. The result was most satisfactory, and the boy could walk well—with a stiff leg, but without any evidence of deformity beyond some shortening. R. Clement Lucas spoke of the old-fashioned way of treating such cases by tenotomy, with results which were not encouraging, and of the great advance of the present methods. He had himself done more in excising the bone in extreme cases of deformity than had been done in the present series.

Dr. R. A. Fleming read a paper entitled, "On the Peripheral Theory of Nerve-Regeneration, with Special Reference to Peripheral Neuritis." He said that there were two theories of the nerve-regeneration which took place when a peripheral nerve was divided. According to the central theory the peripheral end could only regenerate by the central axis cylinders growing down into it; while according to the peripheral theory regeneration could and did occur in the peripheral end even when reunion of the two ends never occurred. The central theory was the old theory, almost universally held until quite recently. The peripheral theory of regeneration was by no means of recent inception, but the work of Kennedy, and more recently of Mr. C. A. Ballance and Dr. Purves Stewart, had done much to direct attention to it in this country. Dr. Fleming demonstrated "neuroblastic" regeneration in the peripheral ends of rabbits' nerves at various periods after complete division, and referred to the value of Stroebe's method of staining axis cylinders. He adhered to the belief that the central axis cylinders were not purely passive agents in the work of regeneration of a nerve after division, and stated various facts which appeared to him to indicate the probability of this combination of the central and peripheral theories being correct. The evidence obtained from a study of a number of amputation neuromata appeared to support this view. He then referred to four cases of peripheral alcoholic neuritis, in all of which regeneration had occurred in some of the affected nerves. The fact that the neurilemma nuclei appeared to have a tropic toward the portion of axis cylinder between the two nodes of Ranvier suggested that the neurilemma cells might act as neuroblasts even without considering the much stronger and more logical evidence from embryology. This tropic function of neurilemma Dr. Fleming described some years ago. "Neuroblastic" regeneration was probably not an obvious process in normal nerves. For the truth of this statement Dr. Fleming deduced evidence from the examination of nerves in a small number of cases presumably healthy so far as the nervous system was concerned. There was no regeneration similar to that seen in the four cases of peripheral neuritis described. "Neuroblastic" regeneration was nature's attempt at repairing the damaged nerve-fibers in peripheral neuritis, and it seemed to be the only possible explanation of recovery in a severe case of the disease in which long areas of nerve-fibers had suffered. Dr. Fleming suggested that the peripheral axis cylinders were probably of epiblastic origin.

BYWAYS OF MEDICAL LITERATURE.—VIII.

Failures of Vegetarianism.

Treating of a subject of hygienic interest, Eustace H. Miles, M.A., has written a book with the title, "Failures of Vegetarianism" (London: Swann, Sonnenschein & Co.), in which there is a very commendable spirit displayed as regards the attitude of mind towards a vegetable diet that may ultimately make vegetarianism a valuable adjunct to other hygienic measures. There is a candid admission at once that the allowance of milk, butter and eggs practically makes a diet non-vegetarian in the strict sense of the term, and that consequently a better name for the system than vegetarianism would be the use of simpler foods. Mr. Miles pleads for more observations with regard to the effect of such simplicity of diet, and strikes the keynote of all true scientific progress when he says that observation and not theorizing is required.

A characteristic incident is quoted which those who have come much in contact with the antis will, we are sure, thoroughly appreciate. One good woman, whose faith in vegetarianism was only surpassed by her zeal in propagating her favorite doctrine, fell in with an inoffensive old gentleman who had permitted himself all his life a moderate indulgence in meat. The error of his ways was vigorously and insistently pointed out to him by his chance acquaintance, who incidentally let fall that she was an antivivisectionist "dyed in the wool." When he finally escaped, the old gentleman remarked, "Really, if she loves animals as much as she pretends to, I am surprised she did not have more compassion for an old goose like me, for that was what she gave me every reason to think she considered me."

Social Bacteria in Economic Microbes, Wholesome and Noxious.

A STUDY IN SMALLS.

Under the above caption Prof. Edward Atkinson of Boston, probably our greatest living statistician, has an extremely interesting article in the Popular Science Monthly for August. Notwithstanding its very medically scientific title, the article has nothing to do with bacteriology or microbiology in the ordinary sense of these terms. Prof. Atkinson discusses the various wastes in life, from the preparation and distribution of food-material to the consumption of alcohol and the money spent by many nations for military preparations. Incidentally he compares the amount of money spent on schools and the working up of various manufactured materials in the iron, textile and leather industries. For those who are interested in statistics of the ordinary things of life in this country Mr. Atkinson's paper will prove a veritable mine of detailed and reliable information.

To physicians one of the most interesting features of the article will perhaps be found in a foot-note to his paragraphs on the consumption of spirits in this country. There are said to be 16,000,000 gallons of alcohol used in the arts. With regard to this Prof. Atkinson says: "There is reason to believe that more than half the quantity of spirits said to be used in the arts is consumed in making beverages, temperance drinks and quack or proprietary medicines, for which a very high price is paid by ignorant or uninformed persons, many of whom are totally unaware of the fact that they are drinking intoxicating liquor."

He then quotes from the official reports of the Massachusetts Board of Health certain statistics with regard to the amount of alcohol by volume contained in such various popular proprietary remedies as Ayer's Sarsaparilla, Hood's Sarsaparilla, Liebig Co.'s Cocoa Beef Tonic, Parker's Beef Tonic (purely vegetable, recommended for inebriates), Boker's Stomach Bitters and Warner's Safe Tonic Bitters.

Ordinary whisky, as dispensed in saloons is scarcely stronger in alcoholic content than are most of these so-called remedies, and especially some of them that are recommended for the treatment of inebriates and the alcoholic habit. As the remedies are prescribed to be taken in tablespoonful or even larger doses three times a day, it can easily be understood why they give a delusive sense of well-being and increase the appetite of those who take them. It is very probable that at the present moment the temperance societies of this country could do nothing better calculated to advance the cause of temperance than to undertake a vigorous crusade against the use of such remedies. In woman particularly the origin of the craving for liquor is often a mystery to her family and friends. Undoubtedly the taste for spirits not infrequently begins with indulgence in these so-called "tonic" remedies, which have done and are doing an incalculable amount of harm.

Religion and Neurology.

It was once said by a well-known literary man that Prof. William James of Harvard wrote books on psychology that read like novels, while his brother Henry James, the novelist, sometimes wrote novels that read like treatises in psychology. Prof. James's recent book, "Varieties of Religious Experience," from which we quoted in the last number of the Byways, has many things of special interest to medical men, because it supplies material for answers to certain intrusive doubts in regard to the spiritual significance of many things in life that seem no more than mere physical phenomena.

The opening chapter, on "Religion and Neurology"—announced as a lecture at Edinburgh under the vivacious title "Is Religion a Nervous Disease?"—deals with the medical materialism which would explain away the intenser spiritual experiences as due to bodily disturbances. "Medical materialism finishes up St. Paul by calling his vision on the road to Damascus a discharging lesion of the occipital cortex, he being an epileptic. It snuffs out St. Theresa as an hysteric, Saint Francis of Assisi as an hereditary degenerate. George Fox's discontent with the shams of his age, and his pining for spiritual veracity, it treats as a symptom of a disordered colon. Carlyle's organ-tones of misery it accounts for by gastroduodenal catarrh." To which Mr. James answers that by the first principle of physiological psychology "there is not a single one of our states of mind, high or low, healthy or morbid, that has not some organic process as its condition. If we only knew the facts intimately enough we should doubtless see 'the liver' determining the dicta of the sturdy atheist as decisively as it does those of the Methodist, when in another way the atheist form of mind." Since all thoughts have physical conditions, no thought is by that mere fact discredited. Nor is the distinction between healthy and unhealthy physical conditions decisive in the matter. A temperament nervously unbalanced, however inferior from the standpoint of personal comfort and longevity, is compatible with high social usefulness, may even in certain forms of such usefulness be a powerful aid. We must judge the spiritual value of mental states by experience of their results for life. This is something upon which their bodily antecedents shed no light. "When we speak disparagingly of feverish fancies, surely the fever-process as such is not the ground for our disesteem—for aught we know to the contrary, 103° or 104° Fahrenheit might be a much more favorable temperature for truths to germinate and sprout in than the more ordinary blood-heat of 98 or 99 degrees. It is either the disagreeableness itself of the fancies, or their inability to bear the criticisms of the convalescent hour that stamps them as delirium." "By their fruits ye shall know them, not by their roots."

Shakespeare and Bacon and Medicine.

During the last year the advocates of the theory that Bacon wrote Shakespeare's plays have been especially active, and one of the recent contributions to the subject, "The Mystery of William Shakespeare," a summary of evidence by Judge Thomas B. Webb, Regius Professor of Laws and Public Orator in the University of Dublin, in one of its most striking chapters deals with "Shakespeare as a Man of Science." Here all the medical knowledge so often supposed to show that Shakespeare must at one time have studied medicine is explained by references to very similar passages in Francis Bacon's acknowledged work. The famous passage, for instance, in which Mistress Quickly gives an account of Falstaff's death and incidentally displays Shakespeare's detailed knowledge of the sort of death Falstaff was likely to meet, is proved to be suggested at least by certain passages of Bacon's writings that did not appear until after Shakespeare's death. Says Mistress Quickly:

"For after I saw him fumble with the sheets, and play with flowers, and smile upon his fingers' ends, I knew there was but one way; for his nose was as sharp as a pen, and a' babbled of green fields."

A little later in the same passage she adds:

"So a' bade me lay more clothes on his feet: I put my hand into the bed and felt them, and they were as cold as any stone; then I felt to his knees, and they were as cold as any stone, and so upward and upward, and all was as cold as any stone."

In the *Atriola Mortis,* written by Bacon, he gives as the signs of coming death *motus manuum floccos colligendo,* movements of the hands as if gathering bits of wool; *memoria confusa,* confused memory; *nasus acutus,* a sharp nose; *frigus extremitatum,* coldness of the extremities; and then the crying out of the dying man, which, by the way, Mistress Quickly also describes:

"So a' cried out, 'God, God, God!' three or four times. Now I, to comfort him, bid him a' should not think of God; I hoped there was no need to trouble himself with any such thoughts yet."

Edward Dowden, the distinguished Shakespearian scholar, shows that most of these signs of death mentioned by Bacon were commonplaces in the literature of the time. His article on the subject in The New Review (London) for July, 1902, is well deserving of attention. In Holland's *Pliny* it is said that a man may see death in the eyes and nose most certainly, and dying men are wont "to keep a fumbling (the very expression Shakespeare uses) and pleiting of the bedclothes." There was also an edition of Hippocrates in common use in Shakespeare's time, from which many of these expressions could have been gathered and from which as a matter of fact Bacon seems to have obtained them.

There is a peculiar disease known as the "mother," which Shakespeare mentions in *King Lear.* Bacon has also a reference to it. But it has lately been shown that in the very year that Shakespeare wrote *King Lear,* Jordan, a well-known English physician of the time, published a paper with the title, "A Brief Discourse of the Mother;" besides which there is a mention of the disease in the look from which Shakespeare took the names of his evil spirits as he uses them in *King Lear,* and it would be not unlike the usual custom of the poet to take other hints from a book like this for material for his drama.

It was very characteristic of Shakespeare's careful eye on the main chance to introduce into his plays subjects that were of recent popular interest in London. For instance, when *The Merchant of Venice* was written, Queen Elizabeth's physician, one Lopez, a Jew, had not long before been put to death on the accusation of having attempted to take Christian lives. This gave

Shakespeare's play a certain recency of interest that he does not seem to have considered it beneath his dignity as a dramatist to take advantage of for the sake of the returns that it might bring to the box-office of those days. In 2 *King Henry IV* there is a reference in the line, "Not Amurath an Amurath succeeds" to the recent death of the Sultan of Turkey, Amurath.

In Romeo and Juliet Shakespeare refers to an earthquake felt in London some years before. Shakespeare therefore may very likely have obtained his material referring to the mother from Jordan's book.

With regard to the drugs mentioned by Shakespeare, he talks frequently of poppy and mandrake or mandragora as sleeping-drafts. Bacon mentions mandrake and opium as soporiferous drugs. There is, however, very little significance in this coincidence of expression, since in the literature of the time these two drugs are frequently mentioned and usually connected together. Donne has the line, "Poppy she knew, she knew the mandrake's night."

It would seem then that even this last attempt to show that Shakespeare could not have written the dramas usually attributed to him and that they are Bacon's work, must also be considered a failure. Some one said very well not long ago that Shakespeare was much interested in cranks and peculiar people when he lived, and that since his death, by a certain irony of fate, a revenge of time, as it were, cranks and peculiar people have been particularly interested in him.

SOCIETY PROCEEDINGS.

SECOND INTERNATIONAL CONFERENCE FOR THE PREVENTION OF SYPHILIS AND VENEREAL DISEASES.

Held at Brussels, Sept. 1-6, 1902.

(From our Special Continenal Correspondent.)

First Day—Sept. 1, 1902.

In our issue of September 30, 1899 (p. 438) we published a report of the first international conference for the prevention of syphilis and venereal diseases, participated in by the leading experts of the world. Not only, as in 1899, was every civilized country represented this year, but the leading parts in the congress were assigned to those most qualified to give an expression of authoritative opinion.

Objects of the First Congress.—The objects of the first congress were:

1. To determine by general reports of leading specialists the dangers to society of (a) syphilis; (b) gonorrhea; (c) the part which prostitution plays in the propagation of these maladies; (d) other modes of dissemination apart from prostitution.

2. To determine by collective investigation the condition of prostitution, the degree of frequency of venereal diseases, the prophylactic measures taken to diminish these affections, the laws concerning prostitution, state and municipal, preventative or repressive, the police or medical supervision, opportunities for treatment in hospitals, medical instruction regarding venereal diseases, etc.

3. To consider the following six questions: (1) Have those systems of official regulation which have been in force had an appreciable influence in the diminution of venereal diseases? (2) How can the medical supervision of prostitution be made more effective? (3) From a purely medical standpoint would it be of advantage to tolerate houses of prostitution or should these be suppressed? (4) In what manner can police supervision of prostitution be improved? (5) By means of what legal measures might the number of women who seek prostitution as a means of support be diminished? (6) What general measures, apart from those concerning the prostitute, can be taken to effectively combat the spread of syphilis and venereal disease?

The results obtained by the free discussion of these questions showed most convincingly the eminent desirability of the holding of such a congress, the statistical inquiries in particular showing that a most alarming and unfortunate condition was present. Inasmuch, however, as the statistical matters presented at this first session in 1899 showed great lack of uniformity, one of the first suggestions was to prepare a chart of procedure for future statistical inquiries which might bring the results obtained in various countries into greater accord.

The great extension of these pests being admitted as well as a certain degree of success attending their diminution by legislative action, the problems outlined in the six questions previously cited still remain for the most part unsolved. It was the function of the first congress, however, to clear up a number of dependant issues and to point out more clearly a number of important conclusions: (1) That municipal control of prostitution as practised has not been a complete success; (2) That the prostitution of minors is the most dangerous of all forms of prostitution and should be combated by rigorous measures; (3) That medical instruction in venereal diseases should be made more thorough and more practical; (4) That apart from the question of prostitution the public at large should be more widely instructed regarding the dangers of syphilis, both to the individual and to society at large, and (5) That the statistics of venereal diseases should be established on uniform bases for all countries.

With the experience gained by the discussion of these questions during the first congress, the permanent committee submitted for consideration at the second conference three sets of propositions concerning, Public Prophylaxis; Individual Prophylaxis and Statistics:

I. *Public Prophylaxis.*—Inasmuch as it has come to be a function of legislation to protect society at large from the ravages of contagious diseases which by their frequency or by the ease with which they are spread, constitute a public danger, and moreover to afford protection to minors abandoned by their families—

A. What legislative measures should be taken against venereal diseases, especially concerning (1) Prostitution, (a) of minors; (b) control of public peace and morality, (c) procurers and pimps. (2) Apart from Prostitution, (a) for the protection of minors of both sexes; (b) for the organization of gratuitous medical treatment by public hospitals and by mutual aid societies; (c) for control, of wet nurses, of infection by midwives and nurses, of infection by vaccination from arm to arm, of infection through implements in the industrial arts; for protection of servants in employment bureaus, hotels and lodging houses.

B. Should the transmission of venereal disease be made a penal offense?

II. *Personal Prophylaxis.*—If it be the function of the State to enact measures for the protection of society, it is further a paramount duty of the sound individual to avoid all contact with a diseased person and even far more the duty of a diseased person to do everything possible to prevent the infection of others. Therefore, (1) by what means may the youth of the country and the public at large be made more cognizant of the personal and social dangers of syphilis and gonorrhea, and the modes of direct and indirect infection of these maladies; (2) in what manner can gratuitous medical service in clinics, hospitals, etc., further individual prophylaxis?

Opening of the Second Congress.—With this comprehensive and carefully arranged program the deliberations of the conference opened on Monday morning, September 1, in the beautifully appointed hall of the Palais des Académie. The conference was opened by the Honorary President, Baron van der Bruggen, State Minister of Hygiene. After the nomination of the permanent committee of the society and a short address of welcome and responses from representatives of the various delegations M. Jules le Jeune, Secretary of State of Belgium, was reelected as chairman of the conference.

Dr. Dubois Havenith, Secretary of the Conference gave a short address of welcome and read announcements of regrets from Professors Fournier, Finger, and Berenger. Thirty-six different countries were officially represented.

Legal Control of Prostitution.—This was the first question taken up by the members of the conference. As with the first congress so with the present meeting the two camps of followers of those believing in regulation and those not so believing became sharply differentiated. Both parties were united, however, on the declaration that regulation, as now carried out, throughout the world, was defective and gave but uncertain results. At this point Professor Neisser proposed to divide this question of Public Prophylaxis into its moral, legal, and medical aspects and for the sake of arriving at clear-cut conclusions he recommended their separate discussion and further suggested that the conclusions be formulated as resolutions to be voted upon and their adoption would constitute an official statement from the congress to the world at large. This was voted an inexpedient mode of arriving at the best measures.

Dr. M. H. Pierson, Director of Heldring, Holland, maintained that regulation was bad, particularly on moral grounds, in that it offered opportunities for debauchery, with safety, and was thus subversive of chastity and of sexual morality. He allied himself with the abolitionists.

Dr. C. Boeck, Professor in the University of Christiania, spoke of the Norwegian system. By this each village has its committee of moral supervisors, whose duty it is to provide elementary instruction in matters pertaining to sexual morality and venereal diseases. Norwegian physicians are compelled to report all cases of venereal disease coming under their treatment.

Dr. Santoliquido Rocco, Inspector of Public Health in Rome, said that in Rome the system of absolute freedom had proven satisfactory. Free medical treatment was advised and he further recommended the Roman system of public instruction of elementary physiology, bearing particularly on sexual problems.

On Supervision.—Dr. T. Barthélemy, physician to Saint Lazare of Paris, in his report says that nature seems to have but one preoccupation, that of self-perpetuation and of self-perfection. In obedience to this great law of human nature the sexual instinct has its origin; but between the law of nature and the laws of society certain antagonisms have arisen, the most important one of which is the existence of venereal disease which complicates the great law of the sexual instinct in its manifestations. Has not human nature means at hand to controvert and render inoperative the venereal infections? Dr. Barthélemy quotes Fournier as stating that society has at least three methods of accomplishing this conservative function. Moral means, medical research and treatment, and administrative measures. It is impossible to expect, says the author, that the following out of any one line of dealing with this problem, will result in the best good—a combination of the three is essential, and he most energetically combats the idea that any one is of more importance than the other. But the moral aspects of the matter have received and are receiving their share of attention, every medical laboratory in the world is filled with active investigators, and he devotes his attention to the administrative question. He believes that, inasmuch as the present restrictive measures operative in France, as well as in other countries, have almost uniformly proven inefficient, that it is false to argue that "reglementation," or legal restrictive supervision is a failure, but rather that the methods of supervision and restriction be made more logical and strict. In order to bring such reglementation about, it is to one class in particular that it should show no mercy, and that is to the professional prostitute who, knowing that she is in an infectious stage, nevertheless plies her trade regardless of the havoc she is causing. It is this class, a class which comes to be known to a person, by the police, that should be compelled to submit to treatment in closed hospitals. Such should not be released until they have recovered from any infectious stage.

Dr. F. Valentine of New York spoke in favor of segregation of prostitutes and of the prohibition of liquor-selling in such segregated areas.

Transmission by Nursing.—Dr. Petrini of Galatz, Professor in the University of Bucharest, spoke of the prevalence of this mode of infection, saying that its frequency varies widely in different countries. Whereas in England, where mothers more universally nurse their own children, it is rare enough to apparently need no serious consideration; yet in eastern countries, with which he is familiar it is by no means a rare mode of conveying syphilis. He proposes a special medical service having at its head a competent physician and regulated by civil authorities. All children being nursed by wet nurses should be subject to regular medical inspection and all wet nurses should be regularly inspected and passed upon by this medical bureau. Only passed wet nurses with certification from the bureau of inspection should be permitted to be employed.

Dr. Drysdale of London, Dr. G. Démétriatade of Bucharest and Mr. Yoes Guyot of Paris spoke of the difficulties of State control and believed that open measures of education would prove of greater service.

Professor Neisser of Breslau presented an admirable report from which the following conclusions may be drawn: (1) In the efforts which are taken to prevent the spread of venereal disease, the State should not rest contented with adopting measures for the restriction of prostitution, but should also take advantage of the many opportunities which are offered for contending against the spreading of venereal diseases.

(2) The most important and the most efficient means of preventing the diffusion of venereal disease is by familiarizing the public with the dangers and the importance of these maladies. Above all, young men should be instructed that not only is chastity and continence not detrimental, but that these attributes are desirable from the medical point of view.

(3) All measures adopted by the authorities with the object of preventing venereal disease and of contending with the melancholy consequences of prostitution should be sanctioned by law. The principles of these laws should be as follows: The administration of the law should be relegated to the parochial or municipal authorities of each district.

(4) (*A*) The law should guarantee to every one suffering from venereal disease gratuitous hospital treatment, and should in no case demand from parents, from tutors or from fellow citizens of the patient any reimbursement for the expense of hospital treatment. The State should defray the expenses of this gratuitous treatment, except where charitable societies exist for paying the expenses of such illness. (*B*) In every

town, important community or district, hospitals should be erected—ultimately supported by state aid where the gratuitous treatment of venereal disease and dispensing of medicine should be carried out. (*C*) Care must be taken that all arrangements prejudicial to the treatment of venereal disease at hospitals should be abolished. It is better to place these cases under the department of dermatosyphilography in general hospitals than to establish special hospitals; the nature of the disease should not be revealed to other patients, and the feelings of the sufferers should be respected.

5. The following special measures should be adopted: (*A*) A Sanitary Commission should be appointed which should be the central administrative machine which should take all the necessary steps to ensure the treatment of venereal patients and the prophylaxis of those diseases. (*B*) Compulsory medical notification should be introduced in a two-fold form: As regards the Sanitary Commission: (*a*) The composition of this Commission. Like a legal tribunal, it should consist of judges and jurors. These should be selected mainly from those whose studies, and professional and administrative capacity, give them a special insight into the subject of venereal disease and of prostitution: doctors, clergymen and public officials.

(*b*) The programme of this Commission: Statistics should be kept of all the patients who are notified (by name or otherwise). A sanitary supervision should be exercised over all the subjects of venereal disease who are notified by the doctors or the police as being dangerous to the public health.

This supervision should be carried out in the following manner: (1) The gravity of venereal disease and the necessity of continence should be impressed upon the patient, and in the event of the instructions being disregarded, the police should make a legal complaint; (2) The patients should be subjected to medical treatment, and when they are so subjected, they should either consult at their own expense a doctor nominated by the Commission, or should be treated gratuitously at some public institution set on foot for the purpose. At the same time a card should be given to those individuals brought up before the Sanitary Commission, which should make it certain that the patient was submitting himself with regularity to the treatment ordained. (3) The police should be informed of those patients who neglected to follow out the treatment prescribed, in which case a judicial complaint should be lodged against the offender for his neglect. Sanitary supervision should be kept absolutely separate from police supervision, and the "police des mœurs" should be abolished.

The compulsory medical notification should be made under a double form; (1) Without any indication of name, but in a manner sufficiently clear so as to avoid notifying the same patient twice. The doctors should declare to the Commission, under this form, all the cases of venereal disease under their care. They should indicate: *a.* The Christian name, the initial of the name, the month and year of birth; *b.* The exact diagnosis; *c.* The date of infection; *d.* The source of the infection. This declaration is most important, since it will determine the amount of venereal disease existing. Ultimately this compulsory declaration might be replaced by a legal exactment which should compel the doctors to render a statement at certain intervals. The indication of the source of infection would render it possible to discover clandestine prostitutes, and also those men who have sexual intercourse despite their disease. One condition should be attached to this regulation; the patient must be given a guarantee that the person he denounces as having been the source of his infection should not be punished or rendered liable to damages. (2) The doctor shall indicate the name of the patient, when he has reason to think that the latter is continuing to have sexual intercourse, and is not observing the sanitary measures recommended him. The police should also have the right to signify to the Commission those persons suspected of prostitution, but the Commission alone can decide on the measures to be taken in respect of such persons.

A law should be passed forbidding anyone not in possession of a medical qualification from treating cases of venereal disease, under a severe penalty. Those persons, knowing themselves to be suffering from venereal disease and who continue to have sexual intercourse commit an offence even if contagion does not result.

It is necessary to give every medical man in his educational career adequate instruction in venereal diseases, and possibly a new diploma might be instituted for those who wish to specialize in the subject.

Prostitution in itself should not be considered as a misdemeanor; it should only be punished where the State or society are injured through the misconduct of the prostitute.

The State has the right to deal with existing prostitution by measures specially directed against the dangers caused thereby; further, it has a duty to perform in preventing the spread of prostitution by reforms adopted for the protection of the community.

When anyone (man or woman) is repeatedly warned of the necessity of obeying the regulations indispensable from the sanitary point of view, if such person constantly disregards such warnings, or if a professional prostitute continually neglects to conform to regulations, if she causes a scandal in the street or if she provokes a disturbance, they should, on the complaint of the police, be condemned to detention of long duration, and in the event of the continuance of their misconduct should be placed under the supervision of the police. The system of short detention should be abandoned.

Prostitutes of incorrigibly bad character, who continue to practise their avocation in spite of their incurable condition, should be confined either permanently or for a definite period in asylums or houses of correction. Those placed under the supervision of the police should be subservient to the instructions of that body as regards their domicile and the practice of their profession.

The sanitary supervision of these women should be entrusted to the Sanitary Commission; (*a*) the practice of prostitution should be prohibited in houses where children are living, or where any other lodger raises an objection, and the landlords are responsible for the enforcement of this regulation; (*b*) in order to render the practice of prostitution possible, while at the same time depriving it as far as possible of its publicity, certain houses of resort should be sanctioned; (*c*) the supervision of the streets, a matter which is left to the police, should aim at restricting the public practice of prostitution.

Minors who are prostitutes, or are suspected of prostitution, or who are the subjects of disease should not be left to their own devices; they should be admonished but not punished; some law analogous to the Prussian law of July 2, 1900, should be adopted to ensure their compulsory education (girls so diseased should be submitted at the same time to treatment and to education, which treatment could be renewed either in hospital or outside).

Compulsory education of children who run the risk of moral degradation should be enforced (see Prussian law, July 2, 1900).

Besides these measures, other steps should be taken for the prevention of prostitution: (1) Those minors who are placed under restriction, should be detained in special educational establishments, and not in prisons or houses of correction; (2) the evils resulting from the overcrowding of rooms where children sleep should be mitigated; (3) children from 14 to 18 years of age should be subjected to the same educational course as adults.

But if for some reason compulsory education cannot be enforced, or if a young prostitute defies all efforts for the amelioration of her position, she should be treated in the same way as the older prostitute. There is no necessity for any difference in her treatment, considering that she is pursuing a course dangerous to the public safety and welfare; *for young prostitutes are the most dangerous from the sanitary point of view.*

SECOND DAY—SEPT. 2, 1902.

The discussions throughout this session were devoted to the subject of public prophylaxis. Little new was added to the general store of cut and dried opinions, but the subjects under discussion began to assume a more definite character and a great increase in interest and enthusiasm became manifest.

Dr. L. Pileur and Mr. Sheldon Amos of London spoke of the necessity for the protection of minors with reference to their being forced into prostitution. Dr. Pileur proposed the detention of minor degenerates until they became of age.

Dr. F. Verchère, surgeon to Saint Lazare, Paris, protested against the free sidewalk. From the medical side, many of these street walkers are too ignorant to know that they are diseased and rarely seek medical treatment. He spoke of the frightful conditions found in the streets of London and that such a state of affairs was most illuminating in the discussion of the question of abolition of all measures of restraint. He advocated all possible modes of education, but was pessimistic regarding the probability of moral reform in the young prostitute. As for the treatment he would establish two divisions in hospital work. One for the treatment of those prostitutes who voluntarily sought the physician. These should be permitted perfect liberty to come and go. Another class that resisted treatment should be compelled to undergo a thorough course for their disease and be kept under lock and key until their malady was non-communicable.

Dr. Blaschko spoke again of the dangers of autocratism if prostitution were to be regulated by the ordinary police. Reglementation as carried out has more failures than successes. Free dispensaries he believes would be crowded and would contribute more widely to the diminution of the disease than would supervision.

Prof. O. Lassar of Berlin said that the poor girl abandoned by her lover and driven from home by her parents, and often ill, is a most worthy subject for pity. She is an outcast from society, whereas the man, who has caused the trouble, maintains his place in society. *He* should be sought out and punished. Dr. Lassar spoke of two classes of prostitutes, one who pursues her calling as an extreme measure of gaining her living; the other are natural prostitutes, born for the life and its vicissitudes. Society should elevate the former class and by providing suitable labor permit them to become bread-winners in a higher sense. The other class should be tolerated and afforded an opportunity to meet clients under the roof of one who could be held responsible for everything that occurred in her house.

Dr. P. Gastou, Chief of the St. Louis Hospital Laboratory of Paris, said that the most important point is to attack the prostitution of minors, in all its branches; especially the so-called "free lances," which class constitutes the most dangerous one to society. The surveillance of these minors, however, should not involve any infringement upon personal liberty. Syphilis, being more dangerous than tuberculosis, should be treated on much the same principles but with differing details. He highly recommended the principles of universal and thorough education in matters pertaining to sexual relations and their dangers.

Mme. Bieber Böhm, President of the "Society of the Protection of Youth" of Berlin, enunciated the general principles of protection and education of minors by improved social laws and methods of providing better moral, physical, and psychical surroundings. She advocated greater stringency in the seduction laws, and wider sympathy with the seduced, looking towards their regaining their place in society.

Following an elaboration of some general arguments by Drs. Merk and Minod, Dr. Landouzy, Professor of the Faculty of Medicine of Paris, said that there was no question that the present condition of affairs was bad. He maintained that the State was to be held responsible for the protection of its citizens, but that the systems as now elaborated, and particularly in France were very unsatisfactory and insufficient. They took recognition only of the registered prostitute and only a portion even of these. Apart from general questions of morality the State should recognize only the fact of contamination and of prophylaxis and should treat the venereal diseases as other forms of contagious diseases and protect the citizens along the lines mostly approved for protection against tuberculosis, typhoid, etc.

He further advocated the formulation of civil laws which should make the giving of venereal disease a civil offense with the right to obtain monetary damages. The question to be considered is one of poisoning. New laws are not needed, but the old laws concerning poisoning so modified and amplified to fit the case of bacterial infections.

Regulation a Failure.—Dr. Santoliquido reiterated his opinion that general educational measures should supplant police regulation and that if there was to be a supervision it should be by the medical body rather than by the police.

Dr. Rethan Macaré, General Counsellor to the Supreme Court of Holland, also spoke of the inefficiency of the present modes of supervision actually in vogue in Holland, particularly those relative to the protection and care of pregnant women. He believed that men who were actively syphilitic should be reported if they persisted in marrying.

M. Beco, Vice-President of the Congress, said that while it was perfectly true that for Brussels, the home of reglementation, this system has proven inefficient, it was nevertheless inadvisable for the abolitionists to seek to entirely destroy the system. The fault lay more in the imperfections of the details which new laws could modify and probably to advantage. Every illness, he said, has its own prophylaxis and if syphilis cannot be suppressed as is smallpox, there is no use in saying that an efficient system of prophylaxis may not be found. Time alone will develop a practical system and the objects of the Congress will have been attained only when the results of various efforts may be honestly and logically compared. He proposed the following resolution: That the conference admits the deficiencies of all existing systems of official control and that venereal disease being as harmful as other infectious maladies that they be controlled with the same seriousness although by different means. Sanitary control should be a thing apart from police supervision and should be in the hands of regularly appointed physicians.

Russian Laws.—Dr. de Sturmer, Counsellor of

State, said that notwithstanding the fact that the laws of Russia were over 50 years old, they were still quite applicable to the question under discussion. In Russia the most stringent measures are directed against procurers of all kinds. Minors are forbidden to enter houses of tolerance and it is a crime to have sexual congress with a female minor. Reglementation has been abandoned in St. Petersburg and the public women are allowed to come and go as they wish. One of the results has been that the dispensaries for the treatment of venereal diseases have been empty; the women are often treated once and then do not return. Syphilis is very largely on the increase and something must be done. The professional prostitute, he said, was for the most part morally insane, inasmuch as they lack all moral sense. Russian physicians, for the most part believe that the police service and the sanitary service should be wholly distinct, the one from the other.

Dr. Peroni, Professor of Dermatology, Turin University, said that Italian laws have recently been enacted which have given to the physician more power in the city hospitals. This had permitted better treatment of the sick and particularly has it benefited those affected by venereal diseases. Professional secrecy is something to be zealously guarded.

Dr. de Watroszewski, Inspector of Saint Lazare Hospital, Warsaw, said that prostitution is an evil, and that reglementation is another, two evils are then to be contended with instead of one.

M. Rehaan Macaré proposed the passing of a law which will prevent the marriage of a syphilitic. This is to be so regulated that the physician of the sick party should report to a central medical and judiciary committee which would have the power to prohibit such marriage. This committee should be composed of eminent and non-corruptible authorities.

Dr. Queyrat of the St. Lazare of Paris says that there are practical difficulties in the way of absolute reglementation, citing figures which show that the system to be complete would require a greater elaboration than physical restrictions could admit. He advocates a general crusade all along the moral lines.

Surgeon-Major MacCulloch, Director of Army Medical Service, said that the percentage of recruits rejected for venereal diseases is not as great as reported. He believed that syphilis had positively increased since the abrogation of the Contagious Disease Acts. This was so marked a condition in Burmah as to call for official inquiry.

Dr. Galewsky of Dresden spoke of certain new regulations of the Government of Saxony with reference to the control of prostitution. These were in accord with the recommendations of the Congress of 1889. Early gratuitous treatment of all venereal infections was the most salient feature of the recommendations and was fostered by the distribution of a pamphlet, bearing on the question, by the Saxon Government.

Dr. Jullien of Paris said that the first congress recommended that definite action be taken against procurers and procuresses. It was a matter of great regret, that for France at least no action had been taken against this detestable class of society. This class now openly plies its trade in the streets of Paris and it constitutes a great menace to the citizens of that city and of France, since Paris is the school that trains these lower classes for the entire state if not for a great part of the world.

M. Le Jeune, Minister of State of Belgium, stated that in Belgium the procurer, cadet, is treated as a special class of criminal. He is not given the privilege of the ordinary criminal. His case is taken out of the category of ordinary penal law and he is condemned after proof, to seven years' sequestration. This is an absolute sentence not susceptible of any mitigation whatever by reason of good conduct in prison. Brutal severity alone is considered his due because of the peculiarly hideous character of his crime.

Madame Schwen of Dresden maintains that the maisons de tolerance were unnecessary and had a bad moral influence, debauching society and even spreading syphilis. She champions medium course between the reglementarist and the abolitionist and believes that educational factors should be most vigorously pushed.

THIRD DAY—SEPT. 3, 1902.

With the opening of the session the subject of public prophylaxis was continued.

Equality of Sexes.—Dr. Hartung of Breslau spoke of the supposed inequalities in the treatment of men and of women. In Germany, he said, this is not as great as has been supposed since in many municipalities the physicians have the power of seeking out and compelling men to undergo treatment. The law also provides that cases of venereal diseases be reported. But it is more honored in the breach than in the observance.

Professor Lesser of Berlin said that in all the suggestions that may be put into practice one thing should not be forgotten: This is the maintenance of professional secrecy. Upon its inviolate observance the physician's status, towards the patient, and in society is made what it is. If that relation should in any way be violated the treatment of venereal diseases would become an impossibility because all confidence would have been destroyed.

An American Attitude.—Dr. Valery Havard of the United States Army, speaking for himself said that he was in favor of any system that had for its object the restraining of prostitution and the diminution of venereal maladies. If sanitary regulation accomplishes this result, well and good. He believes it to be a justifiable method. He believes that a state can legalize an evil if in so doing a greater evil is to be suppressed. A state can further permit *maisons de tolerance* and prevent their unsavory addenda, debauchery, etc. To say that by permitting houses of prostitution to be open the state favors and encourages prostitution is neither just nor logically defensible. It is said that regulation is not of service. What then do the majority of statistics seem to signify? Thus in the countries in which reglementation is in force as in Germany and in France, one finds in the army, for instance, 20-35 per 1,000 of cases of venereal diseases; whereas where prostitution is uncontrolled as in England and the United States it is admitted that there are 120 to 155 to the 1,000 of venereal cases. This is an important point on which much light might be shed to advantage. But in admitting that regulation can and does diminish most sensibly the incidence of venereal disease, is it necessary to apply it throughout? It is known that there are many laws most excellent in their ideals which in practice fail to serve or even work disadvantageously. In many regards such is the condition with reglementation. It is excellent in principle when one would apply it integrally, but it is bad to apply in a state in which the spirit of the people will not permit its entire application. All being said it should be proclaimed in a most decisive manner that it is granted that moral prophylaxis is a still better ideal end, in that it takes cognizance of all factors and should be *the* basis of all reforms of bad social conditions. The conscience of the youth should be a most important factor in prophylaxis. On final analysis the great factor of education is an end to be sought by all and the Church and the State should work side by side for mutual good.

Local Needs to be Consulted.—Dr. Demetriatade of the University of Bucharest was of the opinion that legal control of prostitution is indispensable, but all laws looking to this end should be framed in accordance with a thorough appreciation of local conditions.

Dr. Berthod of Paris proposed that all insurance societies refuse to accept risks for patients afflicted with venereal disease. This measure would have, he thought, an important secondary value, especially when marriage was contemplated in enabling parents to prevent marriage of daughters to syphilitic men.

Dr. Blaschko of Berlin said that the number of members of the Kranken Kassen (Mutual Aid Societies) is constantly on the increase, and especially among the working people, one can look forward to the time when all will be insured in these associations. Thus an influence will be at the disposition of the physician which may give brilliant results. Obligatory insurance against illness as it exists to-day in Germany is one of the most influential factors in diminishing the spread of veneral diseases and of medical pauperization.

Dr. de Morsier read a paper of Dr. de Meron, who proposed three grades of protection for minors according to their age and physical development. The first grade of legal measures should guard them from infancy to puberty; a second grade would guard those who had entered the period of puberty and a third grade would guard minors until their majority. The laws diminishing in vigor and severity as the age increased.

Dr. Kohn of Berlin endorsed Dr. Blaschko's views and further spoke of the benefits derived from distribution of educational pamphlets among the members of the Kranken Kassen. Those bearing, thus far, on tuberculosis and on typhoid fever had had a marked effect in prophylaxis against these diseases. Whenever a municipality helps the Kranken Kassen it assists directly the maintenance of the health of its people.

A short discussion here followed, apropos of the dangers pro- and con of arm-to-arm vaccination. Drs. Havard, Landouzy, Cicero, Castelo, Bece, and others participating.

Wet Nurses—Dr. Galewsky of Dresden spoke of the desirability of greater attention being given to the reception of infants into hospitals. Here it is possible to examine the mothers for venereal disease and since the major portion of these mothers seek positions as wet nurses, the protection of mother, child and society may be effected.

Dr. Bertarelli proposed that no wet nurse be employed without a physician's certificate that she is sound and also spoke of the other contingent concerning the choice of a wet nurse for a syphilitic child.

Sailors as Infecting Agents.—Dr. Reimers of Hamburg said that syphilitic babies born in Hamburg hospitals were kept under medical control for a year. He spoke of the great frequency of syphilis among sailors. Particularly was this true of sailors on sailing vessels. The German Government has promulgated measures requiring that all sailors shall be subject to a physical examination in order to determine their fitness for their calling. All sailors found to be infected with venereal diseases are obliged to undergo treatment.

Industrial Infections.—Dr. Landouzy said that legal recognition should be taken of all cases of syphilis acquired by workers in industrial manufacture. Responsibility should be lodged in the proprietors of such manufactures. Such a law would tend to clean all factories of venereal disease. He urged that "industrial syphilis" be legally recognized.

In the afternoon session a full, free and at times spirited discussion took place regarding the framing of certain recommendations which should go forth as official pronouncements of the Congress. These recommendations will be found at the conclusion of this report.

Fourth Day—Thursday, Sept. 4, 1902.

Legal Responsibility of Transmitting Venereal Disease.—This was made the subject of the morning's discussion. The theme is by no means a new one, yet it is advanced as a sovereign remedy by many. The sense of the Congress was most decidedly against its advocacy. Many of the speakers were jurists of continental reputation and their remarks were listened to with evident appreciation.

M. Bonnevie of Brussels said that syphilis insontium and syphilis should be recognized legally as two different things; the one acquired by an innocent party through the fault of another; the other a matter of voluntary exposure. The law would not and could not recognize an immoral contract as between client and prostitute, save in the case of violence or theft. The law should be requisitioned against an individual not because he has wronged (infected another), but because he has wronged society as a whole, as represented by the tort suffered by one of its members. When such cases are taken into civil courts all sorts of technical difficulties, questions for experts, etc., arise and as a result the small hope of obtaining damages on the one hand and the danger of blackmail on the other make the question very difficult except in the most flagrant instances. Prostitution is not recognized by law. It cannot be, and those who seek their living in it must know the dangers to which they are exposed. Prostitution is a condition. Misery and crime are responsible for its presence. Remove these and then attack the evil.

Divorce not a Remedy.—Professor Fournier has claimed that ⅕ of all syphilitic women have been infected by their husbands. This is a terrible fact, but how can it be remedied? Divorce? Yes, but how will this right the wrong? It will not remove syphilis from the wife, and further, how can the charge be proved against the husband? There must be a greater chance for the poor wife before the courts. She must be given a better opportunity to fight for her share of happiness in life. The man with syphilis who insists on marrying because of pecuniary or social advantages to be derived should be considered by the physician as outside the moral plane of society and within the criminal class. He should be treated as such and imprisoned (the cause not to be revealed) by complaint of the physician whose duty it is to prevent a crime to society. The dangers of venereal disease should be taken into consideration in all contracts for marriage, much as other defaulting factors are provided for in business agreements.

Jurists Bell and Le Foyer of Paris said that the causing of an infection in another should be considered in law as a tort. This should be established in the legal codes. The injury and loss that such an infection causes its victim should be legally recognized. Then and not before can a satisfactory basis be established for proceeding against cases of venereal infection.

Professor Jadassohn of the University of Berne said that within recent years a new law had been passed by the Swiss Parliament at Berne. This practically makes it a misdemeanor for a prostitute to continue in her calling after a physician has notified her that she has a contagious disease.

Professor Tomasoli of Palermo said that the taking away legal restraint of prostitution as advocated by the abolitionists would be a stop in a reverse direction.

The prostitute must be legally controlled because of the close relation that prostitution bears to crime and to criminals. The state control of prostitution is a legal necessity as a protection to the community.

Individual Prophylaxis.—This, the third topic of discussion, was taken up on the afternoon of the fourth day. The remarks became general and we present only the more striking suggestions.

Dr. Good spoke of the various means by which a knowledge of venereal diseases and sexual hygiene may be diffused. Talks and lectures are unsatisfactory save in hospitals, garrisons, etc., where the discipline will not interfere with the presentation. Placards and signs are of limited use. This is largely due to the fact of the fundamental differences in the modes of instructing the two sexes. Pamphlets and books, carefully written and wisely distributed, form the safest and surest means of popular instruction. They are least often misunderstood.

Dr. Queyrat said that the clergy could do an important work if they would attempt to teach that sexual matters are not things to be hidden and to be ashamed of. By their efforts they could bring about a healthy tone of morals.

M. M. de Morsier gave some practical suggestions regarding the teaching of the phenomenon of reproduction. If the nature of sex were shown from its biological sides, in plants, in lower animals, and the various gradations of sexual development up to man were taught much that is now shrouded in mystical curiosity would become the common knowledge of the youth without sexual tinge. The soldiers and the sailors should be instructed by special means. Lectures and pamphlets make the best means of reaching this class. He thinks that placards are not advisable.

Gratuitous Treatment.—Dr. Santoliquido emphasized the value of gratuitous treatment as a means of individual prophylaxis. In the Italian dispensaries the name of the patient is not asked; consultation is strictly private and the free medicine which is given has no label by which the contents may be known. Instruction in venereal diseases and sexual hygiene is given in all the high schools and universities. The Italian Government spends $200,000 a year for this instruction in the interest of the public health. The good health of a people is a nation's most valuable asset.

Dr. Jadassohn read a paper of Dr. Finger's which dealt with the compulsory instruction of the patient by his physician. The report of the diseased of each sex for statistical purposes is recommended.

The general consensus of opinion was in hearty accord with all measures of practical educational value, intellectual and moral.

FIFTH DAY—FRIDAY, SEPT. 5, 1902.

Individual Prophylaxis.—Professor Neisser said that it cannot be too often repeated that syphilis and gonorrhea constitute grave menaces to society. Those who can afford to pay for medical advice should be compelled to undergo treatment at their own expense. When, however, the individual is unable to pay, society should come to his aid and with regard to its own safety treat him gratuitously since an infected one constitutes a harmful agent.

Dr. Watrowszewski spoke of the desirability of having adequate hospital facilities in which to treat all patients suffering from venereal disease.

Statistics.—The subject of a study of the bases on which statistics should be based was the final subject for discussion. Uniformity and regularity are the features most desirable in order to afford just criteria for comparison. The subject is one of details and on motion of Professor Neisser, after much stray discussion, the matter was referred to a special committee.

Recommendations of the Congress.—A number of final resolutions were unanimously adopted by the Congress as definite steps of advance. These were as follows:

1. Resolution of Dr. Troisfontaine.—That all recruits arriving at the regiment should be given a pamphlet advising them of the dangers of gonorrhea and syphilis. To which should be added a paragraph showing the possibilities of life-long disability arising from venereal diseases. The risks of not applying for treatment at the earliest possible moment are added. Alcoholism and tuberculosis are also to be touched on. Finally, the soldier on leaving his regiment should preserve this pamphlet with his discharge papers.

2. Propositions of Professors Neisser, Gaucher and Jadassohn.—The law should guarantee to each venereal patient gratuitous treatment in the largest sense possible. All conditions or practices in hospitals and dispensaries discriminating against venereal patients should be abolished. In all public hospitals such treatment should be given with medical secrecy and the modesty of the patients should be respected.

3. Resolution of M. Minod.—The most important and most efficacious means for combating the spread of venereal affections consists in the greatest possible spread of information relative to the importance and dangers of these maladies. It should be taught that chastity and continence are not only compatible with perfect health but highly desirable.

4. Proposition of Professor Santoliquido.—Inasmuch as statistics are valuable only for purposes of comparison it is desirable: (1) To establish all statistical enquiries on uniform bases; (2) it is necessary to give over such statistical inquiries to an international bureau; (3) the president of this international bureau should transmit to various governments the general propositions and obtain their criticisms and suggestions.

5. Proposition of Dr. Frank.—The conference recommends that the problem of rational and progressive education in sexual matters from a hygienic as well as a moral point of view be presented to all institutions devoted to the education of the youth. Further, that a commission be appointed to study the editing of treatises, which, inspired by existing brochures, shall serve as means of such instruction for the world in general.

BOOK REVIEWS.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By HOBART AMORY HARE, M.D., B.Sc. Ninth Edition. Philadelphia and New York: Lea Brothers & Co. 1902.

THE first edition of this book was welcomed as a concise but comprehensive treatise which with a small amount of reading would direct one how to handle a case of illness, what to prescribe, and how to put into operation the remedial measures indicated. It was the author's desire to render the work of the scientific investigator available for the bedside clinician, and his book at once met with the favor of the profession. In successive editions the changes have been many in the text without alteration of plan. The present volume differs from all predecessors especially in its wealth of illustrations which show the actual performance of cupping, lavage, inhalations and other procedures so that they can be easily put into practice.

The author still clings to his condemnation of agaricin for night-sweats, though many clinicians value it highly. He wrongly states the dose to be 1 to 2 gr., whereas, to combat night-sweats, the dose should be 1/10 gr. and should not exceed 1/5 gr. Under chloretone no reference is made to the many recently published untoward effects of the drug. In the section on diseases the course and various stages are considered in the treatment, necessarily in a brief and dogmatic manner. Any stomach specialist would condemn the teaching that "lavage is almost always to be resorted to for the relief of chronic gastric catarrh." Yet, remembering the extensive scope of the book and its limitation to a medium-sized volume, it seems a marvel of condensation, unexcelled for quick reference and prompt use where lack of time forbids resort to the larger works.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine, Surgery, Therapeutics, etc., by Leading Members of the Medical Profession Throughout the World. Volume II, Twelfth Series, 1902. J. B. Lippincott Company, Philadelphia.

The present number of the International Clinics contains especially good articles by Prof. Finger of Vienna on The Treatment of Acute Urethritis; by Dr. Wm. B. Coley, on the Radical Cure of Inguinal and Femoral Hernia; by John C. Hemmeter of Baltimore, on Gastrointestinal Intoxication; and by Prof. Thomas Jannesco of Bucharest, Roumania, on Resection of the Cervical Sympathetic; besides a clinical lesson that includes the description of a series of cases revealing most of the ordinary operative gynecological conditions. Dr. Howard A. Kelly of Baltimore has some notes upon The Management of a Modern Private Hospital that will prove eminently suggestive.

The department of Biographical Sketches of Eminent Living Physicians, which promised to add distinction to the Clinics, has somewhat degenerated from its pristine purpose. In this number the article is mainly taken up with the method by which a very distinguished Chicago surgeon collects his bills, even for the examination of patients, in advance, and thus saves all the bother of bookkeeping.

The special article on the function of the digestive glands according to the researches of Prof. Pavlov and his pupils is not of special clinical import, but it is an extremely interesting review of the most interesting work that has been done in physiology in recent years. Prof. Pavlov's researches more than those of any other, serve to show that the tradition of significant progress in physiology in every decade is being kept up in ours.

MOTHER AND CHILD. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College; Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc. J. B. Lippincott Company, Philadelphia.

The author states that this book is not intended to take the place of the family physician, but is to help him by placing at the disposal of his patients such information as physicians commonly give to their patients. But such a book placed in a mother's hands becomes to her like a Bible, an ultimate and infallible authority, and her references to its dogmatic statements make the way of the family physician anything but easy. The sentiment expressed in the latter portion—"It is unjustifiable to expose a child deliberately to any contagious or infectious malady, and, on the other hand, *it is unwise to attempt to escape these diseases*"—is harmful in the extreme, and belongs to the intelligence of the "meddlesome midwife" rather than to that of a professor of the healing art. The common contagious diseases are not by any means harmless, and the best way to avoid their baneful effects is to keep away from chance of infection. The statement that "a foreign body in the eye will nearly always be removed by the movements of the eyeball" ignores the fact that before its voluntary exit the foreign body may do considerable harm. The author recommends nursing a young infant every two and a half to three hours, a longer interval than commonly advised. In the book there are many ideas that might make it useful for young physicians, for example, talks on clothing, baths, the nursery, going out, various therapeutic measures, and the handling of the ordinary accidents of childhood from nosebleed to broken leg, yet such things are better told in more scientific works. We believe that this book will not be used by doctors and cannot safely be given to a mother, but we think that nurses may find in it much teaching that they will appreciate.

THE DIAGNOSIS OF SURGICAL DISEASES. By Dr. E. Albert, late Director and Professor of the first Surgical Clinic at the University of Vienna. Authorized translation from the eighth enlarged and revised edition. By Robert T. Frank, A.M., M.D. With 53 illustrations. New York: D. Appleton and Company, 1902.

IN making this German classic accessible to the American reader, both translator and publishers are conferring a benefit on the English-speaking profession. While numerous works on medical diagnosis, both of native and foreign origin, have appeared of recent years, surgery has been less considered from this point of view. The present volume meets exactly the conditions required by the practitioner by presenting its material in such guise as to be eminently practical and at the same time attractive in treatment. It is, in fact, a series of clinical lectures illustrated by a large amount of actual material and illuminated by all the wealth of experience and reminiscence of a veteran teacher. Unlike the class-room course, however, it is free from disjointedness, and the diagnostic problems presented by every region of the body are systematized in orderly sequence. All scholastic classification has been discarded, and each section of the body is treated as the seat of conditions more or less similar in nature and symptoms, but requiring differentiation of diagnosis. The difficulties and mistakes likely to arise are pointed out by the citation of cases usually sufficiently dramatic in nature to impress themselves on the mind, and frequently carried to their logical termination in the operating or autopsy room. The translator has most satisfactorily accomplished what must have been a difficult though agreeable task. His sentences read smoothly and are free from the syntactical monstrosities that seem to be the usual penalty of over-familiarity with the German tongue. Indeed, the only slip we have found is on page 327, where the word "Spiegel" is given its common meaning, "mirror," instead of the technical one, "speculum," which evidently was intended.

KLINISCHE UND EXPERIMENTELLE STUDIEN ÜBER DIE INNERVATION DER BLASE, DES MASTDARMS UND DES GENITAL APPARATES. Sanderabdruck aus der Deutschen Zeitschrift für Nervenheilkunde. Dr. R. L. Müller, I. Assistent Med. Klinik, Erlangen. Leipzig. F. C. W. Vogel, 1901.

THIS reprint contains interesting clinical studies of the nervous reflexes in the bladders and rectums of patients suffering from paralysis, and makes it clear that true paralysis of these organs does not persist, but that a spontaneous emptying of the receptacles, especially the bladder, occurs after slight warning, though sufficient to enable the patient to take proper precautions. If cystitis is prevented, then in the early stages of the affection the outlook for the patient is not so full of inconvenience as might at first appear to be the case. The clinical conclusions are confirmed by what takes place in dogs when the so-called micturition center in the spinal cord is destroyed. The work and its conclusions deserve the careful attention of physiologists and neurologists.

THE ROLLER BANDAGE. By William B. Hopkins, M.D., Surgeon to the Pennsylvania Hospital, etc. With illustrations. Fifth edition, revised. Philadelphia: J. B. Lippincott Company, 1902.

THIS little manual fulfils adequately its purpose and is the best possible theoretical introduction to the application of the simple roller. Terse descriptions of each bandage are accompanied by excellent photographic plates illustrating the various steps in the application of the dressing and showing the manner of overcoming the difficulties likely to be encountered. While it is true that the more bandages a man has applied the less likely he is to follow the formal models, still the ability to improvise efficient modifications can be attained only by a thorough preliminary understanding of the classic forms, and for the student no better guide than the present can be recommended.

THE SURGERY OF THE RECTUM. By Charles B. Kelsey, A.M., M.D., late Professor of Pelvic and Abdominal Surgery at the New York Postgraduate School and Professor of Rectal Surgery at the University of Vermont. Sixth Edition. Illustrated by 215 engravings. New York: Wm. Wood & Co. 1902.

ALREADY in its sixth edition, this volume fully deserves the high place it has been universally given in the literature of its subject. The author realizes the ideal of the true specialist, and brings to the consideration of the topics in question an experience ripened by much activity in general medicine and surgery. Accordingly we find full descriptions of the connections between affections of other organs, more particularly the female pelvic viscera, and the maladies of the rectum and its surroundings. A separate section is devoted to "Affections of the Genito-urinary Organs involving the Rectum." This comprises most of the commoner gynecological operations, but the author justifies their introduction by the observation that nothing is described which the practitioner may not be called upon to do to cure his rectal cases. The text is everywhere exhaustive without being discursive, and the methods of treatment advocated are described with sufficient minuteness to make their application feasible for the general practitioner. But the same unstinted praise cannot in every case be given to the illustrations, which in many instances are far below the standards of modern book-making.

Detailed discussion is hardly necessary in the case of so well-known a work as the present, but it is of interest to note that the author solves the mooted problem of hemorrhoid operations by giving the preference to the clamp and cautery, placing the ligature and excision second and relegating Whitehead's operation to a limbo of unsuitability and danger for all except the most skilful and experienced. The injection treatment sometimes gives good results, but involves so many risks and chances of failure that it is to be reserved for only exceptional cases.

A MANUAL OF INSTRUCTION IN THE PRINCIPLES OF PROMPT AID TO THE INJURED, Including a Chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S.A. Designed for military and civil use. By Alvah H. Doty, M.D., Health Officer of the Port of New York, late major and surgeon, Ninth Regiment N. G. S., N. Y., etc. Fourth Edition. Revised and Enlarged. New York: D. Appleton and Company. 1902.

THE author of the present volume has succeeded admirably in providing the information necessary for the first care of the sick or injured, without encouraging the layman to usurp the functions of physician or surgeon. While it is very evident that the book was primarily designed for the use of the stewards and orderlies in the military service, still it is none the less valuable for civilian use, and a glance at some of the illustrations and descriptions of the U. S. A. hospital corps drill regulations incorporated in the latter portion of the work cannot but discover many useful hints on the transportation of the sick or wounded under any circumstances. The first 67 pages are devoted to an entertainingly written résumé of the most important facts of anatomy and physiology; then follow sections on such general topics as dressings, hemorrhage, fractures, unconsciousness, poisons, hygiene, disinfecting, etc., all fairly comprehensive and well adapted to the understanding of the man in the street. The dissemination of such knowledge as this book contains would not only often contribute much to the comfort of those unfortunate enough to meet with casualties when medical aid is not immediately at hand, but would also greatly lessen the difficulties of the physician when he finally reaches the ground.

The size of the book is such as to make it slip readily into the pocket; the paper and print are good, and the illustrations clear and to the point, so that both author and publishers are to be congratulated on the appearance of this fourth edition of a most excellent work.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

DIE RÖNTGENSTRAHLEN IM DIENSTE DER CHIRURGIE. By Dr. Carl Beck. 8vo, text 138 pages; atlas 65 figures. Seitz & Schauer, München.

THE PRACTICAL MEDICINE SERIES: PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY. 12mo, 212 pages. The Year Book Publishers, Chicago.

DISEASES OF THE ANUS, RECTUM AND PELVIC COLON. By James P. Tuttle, A.M., M.D. 8vo, 961 pages. D. Appleton and Company, New York.

MASSAGE AND THE SWEDISH MOVEMENTS (FIFTH EDITION). By Kurre W. Ostrom. 12mo, 181 pages. P. Blakiston's Son & Co., Philadelphia.

PATHOLOGIE UND THERAPIE DER HERZNEUROSEN UND DER FUNCTIONELLEN KREISLAUFSTÖRUNGEN. By Dr. August Hoffmann. 8vo, 367 pages. J. F. Bergmann, Wiesbaden.

THE MEDICAL STUDENT'S MANUAL OF CHEMISTRY (FIFTH EDITION). By R. A. Witthaus, A.M., M.D. 8vo, 678 pages. William Wood and Company, New York.

THE THEORY AND PRACTICE OF INFANT FEEDING, WITH NOTES ON DEVELOPMENT. By Henry Dwight Chapin, A.M., M.D. 8vo, 326 pages. William Wood and Company, New York.

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ORIGINAL ARTICLES.

MYOMECTOMY VS. HYSTERECTOMY.*

BY ANDREW MCCOSH, M.D.,
OF NEW YORK.

DURING the past ten or twelve years the surgical treatment of the pelvic organs of the female has happily bcome more preservative, or perhaps one might term it less destructive. Previous to this time it was the theory of most gynecologists, and on this their practice was based, that if either the tube or ovary were diseased both should be removed. Many operators went a step further and argued that if the tubes and ovaries were diseased it was best to remove all the pelvic organs. It is needless to quote from the text-books and journals of those days extracts indicating the necessity for the complete removal of ovaries and tubes, and even of the uterus, in cases in which to-day such an operation would be considered by many of us unjustifiable. While it unfortunately cannot be said that this change of view concerning the judicious preservation of the pelvic organs has been universally adopted, the general tendency is in this direction. The uterus with its adnexa is now but seldom removed where a less radical operation on ovaries and tubes will suffice to effect a cure. Cystic ovaries are not commonly, as heretofore, removed *in toto,* or at least the Fallopian tubes are saved in whole or in part. Every effort should be made by the modern surgeon to preserve sufficient at least of a woman's pelvic organs to prevent a sudden and premature menopause, even if it be not possible to leave the woman in a condition in which she will be capable of bearing children.

In cases of fibromyomata of the uterus less progress seems to have been made in the direction of preservation of organs than perhaps is the case in any other line of surgery. It is true that within the past few years attempts are being made by a few abdominal surgeons to be less sacrificial in their treatment of these cases, but the majority of operators still consider that a uterus which is the seat of injurious fibroid tumors is one which demands removal. I am not now referring to debatable cases, in which the tumors are small or cause but few symptoms, but to grave cases in which a woman's life or happiness is threatened by excessive hemorrhage or pain. From conversation with surgeons and from perusal of the proceedings of gynecological societies, one can not but be impressed with the fact that in such cases the rule of most operators seems to be extirpation. It is true that an article is occasionally read in which are reports of a few cases of myomectomy, but generally these are the exceptional cases, and to one article on this subject there will be read a dozen dealing with some minor detail in the operation of hysterectomy. The conclusion must naturally be drawn that in the practice of most surgeons myomectomy is but rarely done, its proportion to hysterectomy being about one in ten or even one in twenty. It is also true, however, that there is considerable difference of opinion, and consequently of practice, in regard to this question, as well as in regard to the question of any radical operation for uterine fibroids.

My own practice tends, I think, toward conservatism. Unless the fibroid is threatening a woman's life or is rendering her a semi-invalid, I have been inclined not to advise radical operation; at least such was my practice when I felt that the uterus must be sacrificed. Since, however, I have learned that in the great majority of such cases the uterus need not be removed, I am less loath to advise operation, especially in younger women. Even in such patients, however, I do not advise operative interference unless there be menorrhagia, pain or rapid growth of the tumor. In older women unless the symptoms be more severe, I generally advise delay in hopes that the menopause may bring relief, or a preliminary curettage is suggested. As a general surgeon I am not usually consulted about mild cases of pelvic tumors. In my private practice the patients are generally referred to me because of symptoms which demand relief by means of operation. In my service at a large general hospital the poorer classes generally apply only after failure of medical treatment, when they are much exhausted by pain or hemorrhage, or when the size of the abdomen drives them to seek operative relief. I mention this so that it may not be said that the cases which I encounter are mild ones, perhaps not in need of operation.

It has always seemed to me that the surgeon's advice to a woman with a uterine fibroid should be more or less influenced by what the operation shall accomplish for that woman. To the average young woman, it is a matter of grave importance to submit to an operation which will deprive her of her sexual organs. If there be a reasonable chance that her tumor can be removed without the loss of her uterus, ovaries, and tubes she will be much more apt to accept operative relief, and the surgeon will be much more justified in recommending such treatment than would be the case were the removal of these organs necessary. Apart from the dangers of operation, the removal of what a woman considers her womanhood is always to her a serious consideration, and fear of this will often doom her to a life of semi-invalidism. If she can be assured that the probabilities are great that the tumors can be removed and her organs saved, she and her family will be much more willing to agree to submit to an operation. For example, let us consider the young unmarried woman; no one will deny that the removal of her uterus with her ovaries is a calamity. The artificial menopause that appears in advance of its proper time often produces months or years of physical and mental discomfort. Brooding over her loss and depression of spirits, perhaps concealed from her family are not unnaturally produced by the knowledge that she is in a measure unsexed. She is apt to shun the intimate society of men, for she feels that she cannot, probably, marry the man of her choice. If marriage seems imminent, she must face the ordeal of telling her lover that she is no longer a perfect woman, and for her child-bearing is impossible. Take, on the other hand, a married woman under forty, what a blow must the loss of her sexual organs be to her and her husband; and even if a certain estrangement be not the result, she is apt to be in constant dread that she may lose some of his affection. On the other hand, however, it is argued that she is saved from a life of suffering, but the price for such relief is great, if it be not absolutely necessary. In the case of elderly women the situation is of course quite different. The removal of the uterus does not in them result in a premature menopause, and in women well past forty years of age a hysterectomy is generally to be preferred to a myomectomy.

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* Paper read before the American Surgical Association, Albany, June 3, 1902.

In my own practice myomectomy is becoming more and more frequent and hysterectomy correspondingly less frequent. I cannot see why the uterus should be totally removed simply because within its structure are located one or more tumors benign in character. Why should we make the uterus an exception? Would we consider it good surgery to amputate an arm simply because in its muscles are located one or more fibromyomata? Or because a cataract appeared in the eye would we think of enucleating the organ? Most certainly not, but on the contrary we would make every effort to save the limb or the organ, and in order to do as little damage as possible, we often resort to the most elaborate plastic operations. It seems to me that we should employ similar patience and skill to save the uterus. Very often this can be done if we only dismiss the impression, which years of reading and practice have made upon our minds, that given a uterus with fibroids demanding removal, *ergo* hysterectomy. Instead of adopting this narrow view we should consider it of the greatest importance that the uterus of a young woman should be saved, and in striving for this end we should employ all our skill in mapping out a plan of procedure which will obviate the sacrifice of such an important organ. If we adopt this view, I feel sure that in the future thousands of women will preserve an organ which in the past has so often been sacrificed. I feel sure that I am not exaggerating this point. In my practice six years ago myomectomy bore toward hysterectomy the ratio of 1 to 23; in 1900 the ratio of 5 to 27; and in the past year the ratio of 22 to 17. It is now my custom to treat the uterus just as I would treat any other organ, for example the stomach or kidney. If it be the seat of malignant disease, I make as complete an extirpation as possible. If it be the seat of benign tumors I remove the tumor or tumors, striving to injure as little as possible the organ itself.

Methods of Operation.—For the removal of uterine fibroids the vaginal route offers, in a certain number of cases, a suitable approach. If the tumors are subserous, moderately small and not very numerous, the uterine body can be without much difficulty turned into the vagina through an incision, anterior or posterior to the cervix, and the tumors extirpated. The application of this method is, however, limited. Following vaginal celiotomy there probably is less shock and the period of convalescence is shorter. The scar is invisible and the dangers of a resulting hernia are practically avoided, but at the present day the risk of such a complication following a clean abdominal incision should be almost *nil*. This method, however, is apt to be attended by the distinct disadvantage that less opportunity is offered for the thorough inspection of the pelvic organs, and less facility for the judicious selection of parts requiring removal either partial or complete.

Apart from the difference in the incisions, the technic of myomectomy by the vaginal is similar to that by the abdominal route, and it is with the latter class of operations that this article especially deals.

An abdominal incision through which the uterus and its tumors can be thoroughly explored and delivered is made usually in the median line. Through this the uterus is drawn out by the hands, volsellum forceps, or Thomas cork-screw. The intestines are carefully walled off from the pelvis by pads of gauze, the patient being in the Trendelenburg position. In elderly women the uterus with its tumors is then removed, the cervix being generally left attached to the vagina; in younger women a careful examination is made to determine whether it is possible to remove all the fibroid tumors and yet leave sufficient uterine tissue to form a useful organ. I am not much influenced by the location of the tumors as regards their relation to the uterine canal. Of course, if the tumors are pedunculated or subserous, the operation is comparatively simple; but the mere fact that the tumor is interstitial or submucous influences me but little in deciding whether the operation shall be a myomectomy or a hysterectomy. The size and number of the tumors is also more or less disregarded. There are of course certain cases in which myomectomy is either impossible or too dangerous; these are apt to be cases in which the uterus from the cervix to the fundus is infiltrated with scores of small fibroids, perhaps extending into the broad ligaments. There are also of course cases in which the tumors are of very large size and in which hysterectomy must be the operation of choice. As will be seen, however, from the report of some of my cases, tumors weighing 6, 8 and 10 pounds have been removed, and frequently their number has exceeded twenty.

Myomectomy having been selected as the operation to be performed, or at least attempted, an effort is made from the appearance of the mass to determine the position as nearly as possible of the normal uterine tissue. Inspection combined with careful palpation will often enable the operator to locate the tumors. The position and attachments of the adnexa are often landmarks of importance, though these are sometimes so distorted and twisted that they may be misleading. The recognition of the relation which the tumors bear to the uterus, while of advantage, is not of essential importance, as frequently the entire mass must be split open from the fundus down to near the internal os. The recognition will, however, enable the operator to spare unnecessary section of the uterine muscle, and will aid him in determining in which direction the incision is to be made. If the tumor or tumors be pedunculated or subserous without encroachment on the uterine canal, their exact relationship is easily determined, and their removal is simple. If the tumor be pedunculated, an incision is made around the base of the pedicle, and the edges of the wound approximated by one or two layers of catgut sutures.

The method of procedure in the enucleation of sessile tumors will depend somewhat on their size and number. If their number be small and if they be well isolated from each other, a separate incision is made through the uterine tissue directly down on the tumor. It matters not whether it be subserous, interstitial or submucous. If the tumor be small, it is grasped with volsellum forceps and forcibly torn out of its bed. If it be large, it is rapidly enucleated with the fingers, considerable force being employed in order to accomplish its rapid removal. With the exception, perhaps, of pressure by the assistant's fingers on the edges of the cut muscle overlying the tumor, no attempt is made to prevent hemorrhage until the tumor has been removed. If this has been forcibly and rapidly done the hemorrhage is very slight, and in a few seconds the vessels generally contract and all bleeding ceases. Occasionally a hemostatic clamp is applied, but usually this is unnecessary. The remaining tumors are then attacked and removed in the same manner. All tumors are generally enucleated before any of the cavities left by their removal are sutured. The object of postponing their closure is to allow of further contraction of the uterus, which generally begins at once and continues for some time.

The method of closure of cavities from which tumors have been enucleated will of course depend upon their size and depth. It is wise to pass the sutures well down to the bottom of the wound, and often several rows will be required.

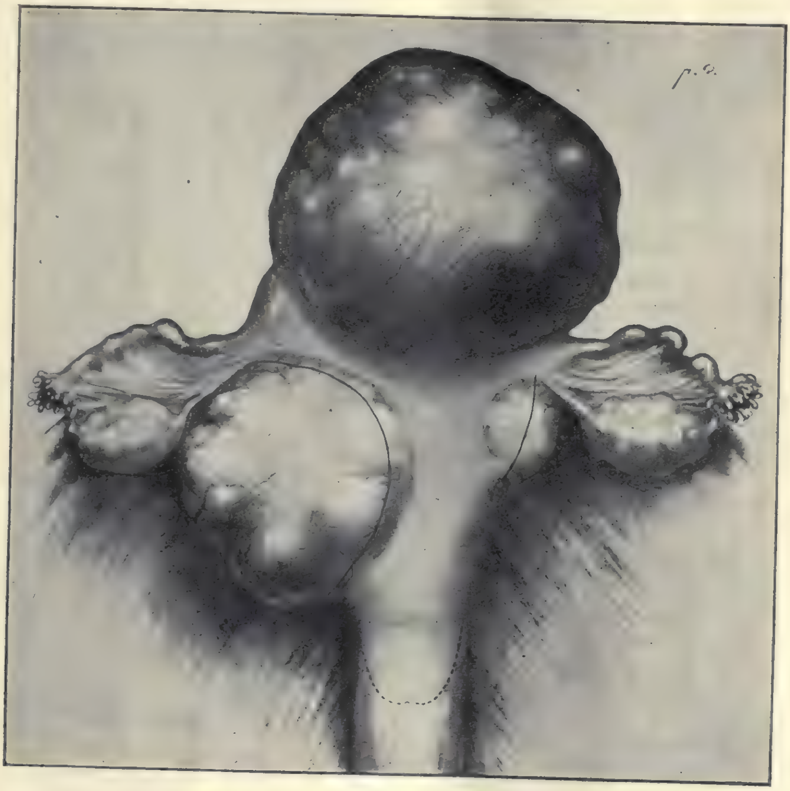

FIG. 1. Case 1. Who later Became Pregnant. Showing also Incisions for Removal of Fibroids.

The deepest layer, which passes down to the floor of the cavity, includes ½ to 1 inch of each wall. If the remaining depth be ½ inch or less, a second layer which includes the serous coat will suffice. If more than ½ inch remain it will be well to employ three rows. (Fig. 4.) The suture I prefer is a continuous one of moderately fine catgut (No. 2). The sutures should be tightly drawn, as otherwise in a few minutes, owing to the contraction of the uterus, they will be found to be loose and slight bleeding may result. If the tumor be large it is better not to incise the tissue overlying the center of the tumor, as if this be done, there will be left two useless, redundant flaps, which have later to be curtailed. For this reason, time will generally be saved if the greater part of the overlying uterine tissue (capsule) is removed with the tumor by means of a circular incision around what appears to be the line of junction of the tumor with the uterus (Fig. 1). Very often after enucleation of the tumors it will be found that the uterine canal has been more or less opened. Under such circumstances, after curettement of the entire endometrium by the insertion of a sharp spoon or curette through the opening in its wall, its edges are closed by a continuous catgut suture, which in addition to the mucous membrane, approximates about ⅓ inch of adjacent uterine tissue. As a rule, I have included the lining membrane of the uterine canal in the suture and have not found that any bad result has followed. Cultures from the interior of the uterus are almost invariably sterile. We have found that in one only out of 23 cases did any growth develop, and this was not pyogenic, and may have been due to accidental contamination. In one other of my cases, in which a fetus more or less macerated was found in the uterus, a growth developed. Of course if the interior of the uterus suggests infection, it would be well not to include the lining membrane in the suture, and in such a case it is also well after dilatation of the cervix to insert a small strip of gauze or rubber tissue, which passes downward into the vagine.

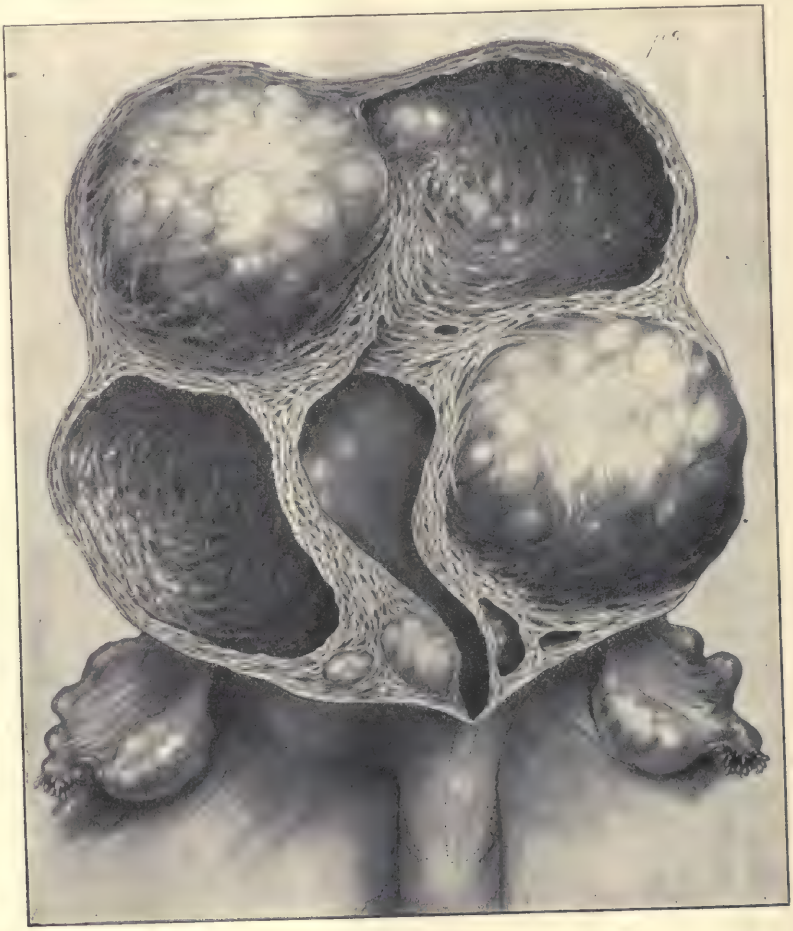

FIG. 2. Case 13. Showing Uterus Split Open through Anterior Wall.

If tumors be multiple and more or less distributed throughout the uterus, there must be a different plan of procedure; the uterus must be more or less split open from the fundus downward on either its anterior or posterior surface, or it may be necessary to completely divide it into halves as far downward as the inner os, each half remaining attached to its broad ligament. In either case the interior of the uterus is freely exposed to view. This free exposure is sometimes deliberately planned, at other times it is merely the result of enucleation of one or more tumors which had encroached on the canal. With the uterus thus laid open every part can be readily palpated and tumors of very small size can be easily felt. Careful search is made by palpation of the uterine wall between the finger and thumb, and all tumors, no matter how minute, are removed by section through the overlying muscular tissue, either from the exterior or the interior. If there be but a suspicious hardness, it is better to cut into it and ascertain if there be not a commencing fibroid tumor. Interstitial tumors are but seldom single, and usually from 5 to 20 tumors are found and removed. As many as 36 were removed from one uterus, and yet a very presentable organ was left.

The appearance of the uterus which remains after enucleation of the various tumors is often very ragged and unpromising. The cut and torn edges must now be trimmed and pared in order to secure wound surfaces as smooth and as regular as possible. Tags and shreds of tissue must be freely cut off, as owing to the muscular hypertrophy of the uterine wall there is generally left a full abundance of tissue from which to mold a uterus of more than normal size. The endeavor should be to restore the organ to as near its normal size as is possible, and one should not fear to trim freely and sacrifice as much of the tissue as will secure even surfaces and exact approximation.

The treatment should be very much the same as we would adopt were a tumor removed from the belly of any large muscle, except tnat in the case of the uterus the procedure is more simple on account of the firm consistency of the muscular structure. An endeavor is always made to preserve those portions of the uterus to which the broad ligaments and adnexa are attached and also as much as possible of the uterine canal with its lining of mucosa, though occasionally the upper part of this must be removed and at times little of it above the internal os remains, and to form the new uterine body there may be but thin flaps of muscle attached on each side to the broad ligaments and adnexa. When I first began to do myomectomies, especially when the uterus was more or less completely divided into two halves, I was often worried by the unshapely appearance of the organ which I was trying to save, but I soon learned that the uterus after careful trimming of its redundant tissue and subsequent careful suture continued to contract and assume a more and more normal shape and size up to the very close of the operation; and the examination of such uteri months and years later has convinced me that Nature continued to mold these organs into shapes that were not far from normal.

The question of hemorrhage practically never troubles me. At the beginning of my experience with these operations I often passed an elastic ligature, to be tied in case of need, around the lower part of the uterus. I soon found, however, that this was never needed, and of late never think of even asking to have one among my instruments. At first, also, my assistants were inclined to grasp the broad ligaments in their fin-

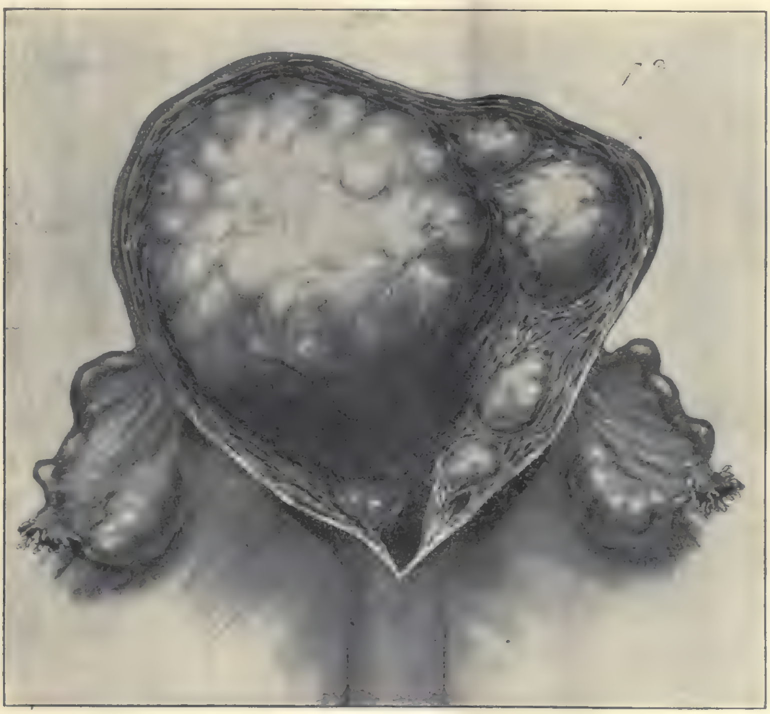

Fig. 3. Case 7. Showing Uterus Split Open through Anterior Wall.

gers to prevent hemorrhage, but I long since learned that this also was entirely unnecessary. I now employ but little hemostasis. Usually the uterus can be freely cut or split open, with but little loss of blood, and in a few seconds practically all bleeding ceases. At times a few artery clamps are applied to spurting vessels, and occasionally the cut edges or flaps must be compressed with the fingers for a half minute or so. When the incisions are made close to the attachments of the broad ligaments one or two vessels of considerable size may need attention. Even if hemostatic forceps must be applied, they can be safely removed without ligation of the vessels at the end of a few minutes. Two of my operations have been on pregnant uteri, and even in these two cases the bleeding could not be called serious or even troublesome. Freedom from hemorrhage depends more or less on rapidity of enucleation of the tumors. If care be taken to secure every bleeding vessel, much blood will be lost and the corresponding shock will be considerable; but I feel sure that if fear of hemorrhage is entirely cast aside and bold incisions, with forcible and rapid enucleation be practised the loss of blood will be slight.

For the reconstruction of a uterine body from what appears to be a mass of more or less unsymmetrical muscle, several rows of continuous catgut sutures are employed. The cut and torn edges of the endometrium are first united together, with some of the adjacent muscular tissue, and the succeeding rows are employed exactly as has been described for the closure of a cavity out of which a tumor has been enucleated. (Fig. 5.) As a rule the broad ligaments have not been disturbed, though occasionally a tumor must be shelled out from between their layers. This, however, is generally accomplished from the uterine extremity and the cavity thus made is closed by the reconstruction of the uterus itself. Should, however, either layer have been split for removal of a tumor, it is carefully closed by suture; indeed, every effort is made to leave absolutely no surface uncovered by peritoneum. In some cases in which there has been extensive laceration of the sides of the uterine canal, or in which there may be a tendency to oozing of blood, a narrow strip of rubber tissue or even gauze is passed down through the cervix into the vagina, its upper end resting in the uterine canal. This is removed in about thirty-six hours. Before the abdomen is closed the patient is lowered from the Trendelenburg position in order that one may be sure that there is no bleeding. Occasionally an additional suture is needed. It is often gratifying, when the uterus has been dropped into the pelvis, to observe what a well contracted and comparatively shapely organ has been constructed out of what fifteen minutes previously had appeared to be a more or less ungainly mass of ill-treated uterine tissue.

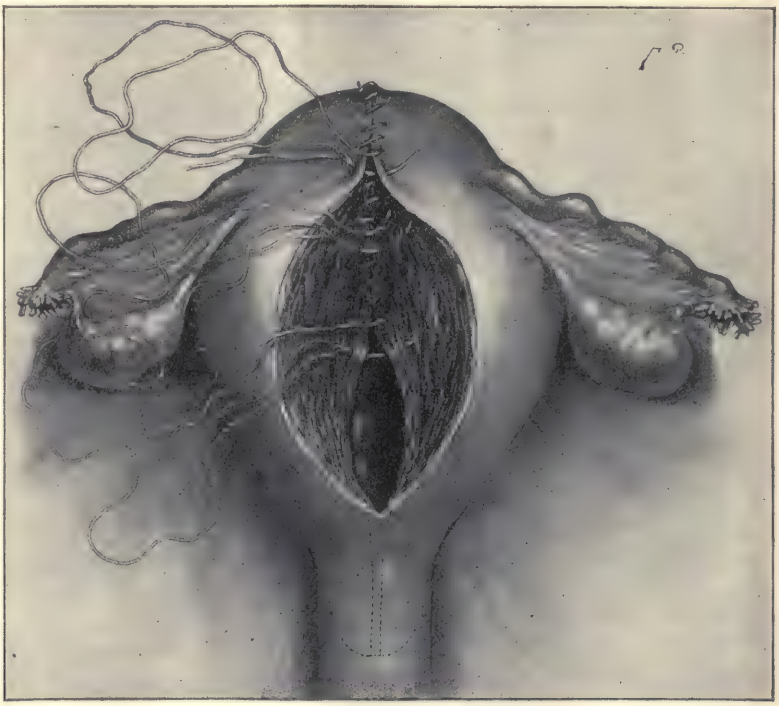

Fig. 4. Case 7. Showing Suture of Uterus after Removal of Fibroids.

The dangers of myomectomy are certainly as great as are those of hysterectomy. With the exception of the complications apt to attend or follow an hour's anesthesia, there are three sources of danger, hemorrhage, shock and sepsis. As regards the first, I have never in forty-seven cases seen a loss of blood which could be considered even as severe, and certainly never serious.

Shock is generally very moderate, though in perhaps 10 per cent. of my cases it has been severe, but has never ended fatally. Sepsis in a slight degree may have been present in a certain number of the cases, or rather some form of sapremia may have caused an elevation of temperature of two or three degrees, which in a few cases has persisted for several days following the operation. In none of my cases has it ended fatally and in none has it resulted in any pus. I have noticed, however, that following myomectomy there is for four, five or six days a range of temperature certainly one degree higher than that following hysterectomy. As regards the accidents which may follow any severe operation, pneumonia has appeared in five of my cases, in two ending fatally, though in one of these there was a complication of a fatty liver and nephritis. These two cases constituted my only fatal ones. In this respect mv experience after hysterectomy has been very similar, and it has always seemed to me that pneumonia follows more frequently operations for uterine fibroids than it does almost any other class of operations, with the exception of course of those done on the air-passages.

In considering the advantages of myomectomy over hysterectomy, one naturally asks for the ultimate results. I have been able to follow thirty-two patients. The results are as follows:

(*a*) Menstruation. Without exception menstruation has appeared with regularity. In twenty-seven cases it may be termed normal, varying from two to seven days. In three cases it has been somewhat excessive, but in one of these after a cureting done fifteen months after the myomectomy, it became natural. In two cases considerable pain is complained of during the first two days.

(*b*) Pain. With one exception all cases are practically free from pain. The one patient who still complains is a nervous woman and is one of those who have painful menstruation.

(*c*) Pregnancy. Of the thirty-two patients twenty-one are married women. Three of these have for the first time become pregnant, two having been delivered of live children at term, the other being five months' pregnant.

(*d*) Recurrence of tumors. I have been unable as yet to learn of any recurrence. In this respect, the uterus does not differ from other organs. By some surgeons the possibility of recurrence of the tumors is used as an argument against myomectomy, but the same objections are valid against operations for the removal of any other new growth or foreign body.

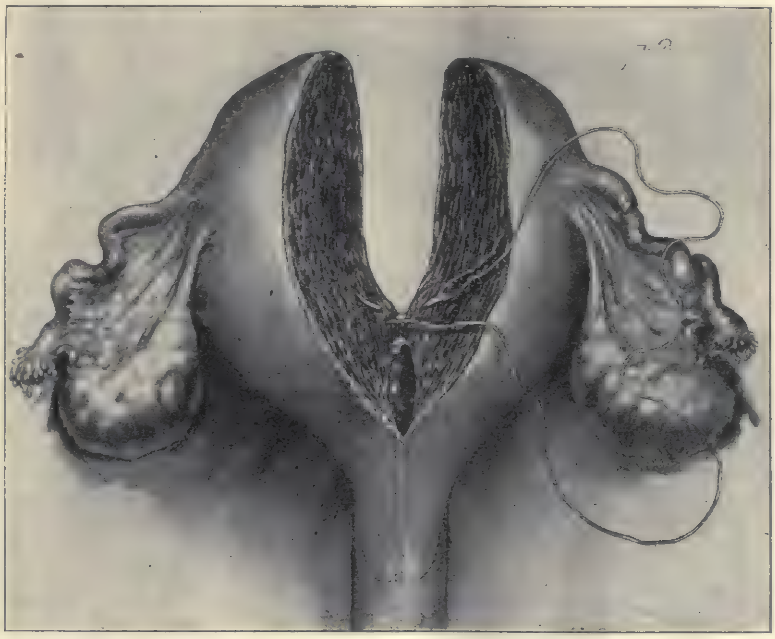

Fig. 5. Uterus Divided as far as Internal Os. Commencement of Suture after Trimming of Uterine Walls.

Brief histories of the cases in which pregnancy occurred are as follows:

Case I.—L. B., thirty years old, married. Never pregnant. For eight years had suffered from severe menorrhagia and considerable pain. Twice curetted without much benefit. Myomectomy January 26, 1899. Seven tumors removed, 5 subperitoneal, 2 interstitial or submucous (Fig. 1); weight of largest, 6 pounds. In February, 1901, became pregnant. Normal confinement in November, 1901. Health excellent.

Case II.—R. G., thirty-eight years old, married. Never pregnant. For seven years menorrhagia, severe pain due to local peritonitis. Myomectomy October 26, 1899. Three interstitial fibroids removed, largest 6x4x4 inches; total weight, 8 pounds. Pregnant October, 1900. Normal confinement June, 1901. Health good.

Case III.—M. M., thirty-four years old, married. Never pregnant. For five years severe menorrhagia and considerable pain. Myomectomy March 12, 1901. One large interstitial fibroid removed; weight, 5 pounds; uterus was completely divided, gauze drain through the cervix. Became pregnant January, 1902.

In conclusion I would offer the following:

1. In young women with uterine fibroids demanding removal myomectomy should always be the operation of choice.

2. Myomectomy is possible and advisable in the great majority of cases of fibroid tumors in young women.

3. For the safe performance of myomectomy the strictest asepsis is needed, otherwise it becomes a most dangerous operation.

4. In the operation of myomectomy fear of hemorrhage should be cast aside and bold and rapid methods should be adopted.

5. The operation is attended by the same danger to life as is hysterectomy.

6. The ultimate results as regards menstruation, pain and pregnancy, are satisfactory.

THE RELATIVE ADVANTAGES OF THE COMPLETE AND PARTIAL HYSTERECTOMY.*

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THE student of to-day is so impressed with the simplicity of the operation of hysterectomy, whether partial or complete, that he can scarcely understand why its details should not have been apparent to the pioneers in this field of surgery. Probably the painstaking progress of surgery is nowhere made more evident than in the realm now under discussion. The instability of the cervical tissue for the formation of a pedicle was early recognized, but at the expense of many lives in cases where its ligation and intraperitoneal treatment were essayed. The frequency of disaster, under such circumstances, caused the conclusion that the uterine stump must be subjected to extraperitoneal treatment and to the instant observation of the operator.

At a time when the clamp was being discontinued for the pedicle in ovariotomy, it soon was regarded as the *sine qua non* in the operation for the treatment of uterine myomata.

The severe traction upon the stump of the cervix and vagina, the prolonged convalescence occasioned by the sloughing and retracted stump, the weakened ventrum and increased tendency to ventral hernia, and the difficulty in preventing the danger of sepsis, stimulated efforts to obviate these difficulties by the entire closure of the abdominal wound.

This naturally was accomplished by following out one of two lines of procedure: either the ligation of the pedicle and its treatment within the abdomen, or the entire removal of the uterus. As is frequently the result, we find a number of men working toward the same end, whose minds are nearly simultaneously illuminated, and consequently a number who claim the credit for its successful development. Thus, Goffe, in April, 1890, describes an operation which he had first performed in May, 1888, in which he secures hemostasis by transfixing anteroposteriorly the cervix, tying each lateral half and covering the stump with peritoneum. The uterine vessels were necessarily secured by these ligatures.

Baer, in October, 1892, describes a perfected procedure which he had first employed in October, 1891. In this operation he employs no ligatures to the stump of the cervix, but controls bleeding by ligating the uterine artery upon either side of the stump, thus necessarily limiting its circulation. With no intention to disparage either the originality or skill of either of these gentlemen, I would direct attention to the fact that they were both preceded in much of the detail of the procedures which bear their names. Fully two years before Goffe's first operation, that brilliant genius whose life record was too short, Charles T. Parkes of Chicago, April 13, 1886, in operating for myoma uteri, ligated the portions of the broad ligaments containing the ovarian arteries, and clamped the remaining portions, removed the uterine mass above the internal os, and thoroughly applied the thermocautery. This controlled all the bleeding excepting from a spurting artery upon either side, which was isolated and ligated. His patient recovered. Again, in 1887, he tied the uterine arteries, cauterized and dropped back the uterine stump, and secured a second recovery.

In September, 1886, Etheridge reported a case of removal of a myoma uteri in which the uterine arteries were ligated and the peritoneum sutured over the stump. He also mentions the employment of a serrenœud, but his article does not make plain whether it was a temporary expedient.

Eastman, in February, 1887, removed all but the cervix, ligating the ovarian arteries, and completing the remainder of the procedure until the cervix was reached by enucleation.

Polk, in a discussion May 21, 1889, reports Stimson as ligating the isolated uterine arteries, and Tuttle, in discussing partial hysterectomy January 15, 1889, suggested that it would be easy to raise up the uterus and pass with a suitable instrument a ligature beneath the uterine artery.

It might seem that these gentlemen, living in the same city, may have profited by Goffe's method, and anticipated him in making it public, but we find that Dr. Goffe was still in the spring of 1889 transfixing the pedicle, and the nearest he came to the separate ligation of the uterine artery prior to the publication of this paper, was in his third case after the ligature upon one side had slipped and he was compelled to quilt the surface together against the side of the stump. In the last 10 years the operative procedure has undergone many modifications, as working down upon one side, cutting across the cervix and pulling the organ away upon the other, a plan of operation of especial value when one broad ligament is occupied by an intraligamentary fibroid. It enables the operator to remove the growth with the least danger to the ureter upon the affected side. In the majority of cases the operation can be expeditiously performed by pushing one blade of large compression forceps through the broad ligament from behind forwards, beneath the round ligament. When each side is thus secured the broad ligament is cut between the fundus and forceps, and any bleeding vessels from the uterine side can be seized by small forceps. The peritoneum is cut through above the bladder and with the latter pushed down. Not infrequently the uterine arteries or the anastomotic arteries can be recognized and seized with forceps, after which the cervix is cut through. If bleeding from the stump occurs, a ligature may be passed upon either side of the pedicle which can be tied above the forceps that were placed upon the anastomotic artery. The upper portion of the ligament external to the forceps, should be crushed with the angiotribe, and in the groove thus formed should be tied with chromic catgut. The redundant portion of the ligament should be trimmed. The peritoneal surfaces should now be closed over the stump in such a way as to turn out of the peritoneal cavity all ligatures, and at the same time the cervix may be raised up.

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* Read before the American Gynecological Society.

The other alternative that we mentioned, complete hysterectomy, likewise attracted the minds of a number of progressive operators. Dr. Mary A. Dixon-Jones suggested pan-hysterectomy before the New York Pathological Society in November, 1887, and carried the procedure into effect in February, 1888. She amputated the affected uterus above the cervix, which was secured by a serrenœud, and then completed the operation by the vagina, securing the broad ligaments by lock forceps, which were guided into place by the fingers from above. The same plan of procedure was suggested by E. C. Dudley before the Chicago Gynecological Society in December, 1887.

Crofford of Tennessee in March, 1889, removed the entire uterus for fibroids and employed the ecraseur to sever the broad ligaments.

Eastman did the same operation in August of the same year, but used ligatures to secure the ovarian and uterine vessels. In later years he has resorted to enucleation, and in closing the pelvic wound he exercises particular care to secure the sides of the vagina, the importance of which he emphasizes by asserting that it is as desirable as the proper union of the abdominal aponeurosis, to avoid hernia. Where this procedure is neglected the vagina will prolapse, causing cystocele and rectocele.

Of all the many devised procedures for performing pan-hysterectomy, that one devised by Doyen seems to the writer the most satisfactory. It is hardly necessary to say that it consists in raising the uterus with the enclosed tumors through an abdominal incision, and having it held by an assistant well over the symphysis, while an incision is made with scissors through the cul de sac upon forceps which were previously placed in the vagina. Through the opening thus formed the cervix is seized, drawn upward and severed with scissors from its vaginal attachment. With slight pressure with the finger the cervix is easily drawn away from the bladder and torn from the broad ligaments. The uterine arteries are generally laid bare and can be seized before bleeding, or upon the first spurt. The uterus is thus pulled upon until the vesico-uterine pouch is reached, which may be broken through, and the uterus is only attached by that portion of each broad ligament which contains the ovarian artery. This is seized with compression forceps external to the ovary and the uterus cut away. The broad ligaments are crushed with the angiotribe external to the forceps and ligated with chromic catgut in the groove. The uterine arteries are ligated with the same material, and the peritoneum closed over the vagina with continuous catgut suture. This suture should be so introduced as to draw up the vagina at each lateral angle.

For the partial hysterectomy it has been claimed that it is more quickly done, gives a better pelvic floor, a more natural vagina, and affords less danger of sepsis.

By the method just suggested, the operation is, in my judgment, much more expeditiously performed. With the vagina properly secured, it is difficult to understand why the retention of the small portion of the cervix should either form a better vagina or lessen the tendency to senile atrophy. With the retention of the cervix it is difficult to obviate the formation of dead space in which serum or blood accumulates, and which from its proximity to the bowel may readily become infected, but when the cervix is removed, there is left a funnel-shaped cavity which drains into the vagina. The advantages we would claim for the complete operation are: Expedition in performance of the operation; complete and secure hemostasis; increased freedom from septic infection; and the entire removal of an organ, the retained portion of which may be the source of subsequent degeneration.

WOUNDS, WITH A DISCUSSION OF WHAT CONSTITUTES RATIONAL TREATMENT.*

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The subject of wounds must ever remain of great interest to the surgeon, for the consideration of them in one form or another makes up the bulk of his work in practice. My purpose is to write with especial reference to the conditions governing the healing of granulating wounds.

A wound, as commonly defined, is a solution of continuity of the soft parts. Direct mechanical violence is usually implied as being the acute cause of wounds but microbic action in the form of ulceration is likewise able to cause a chronic form of wounding. Besides being acute or fresh, chronic or old, wounds, according to their relation to the body surface, are designated as open, when the skin or mucous surface is divided proportionately to the tissues beneath, and closed or subcutaneous, when there is little or no break in the epithelial tissue covering.

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* Read before the Surgical Section of the New York Academy of Medicine, May 12, 1902.

Classified descriptively, wounds are contused, lacerated, incised, punctured, poisoned and burned. Owing to the teaching that gunshot injuries should always be probed for the purpose of locating and removing a lodged missile or fragments of clothing or other extraneous matter which might be carried past the point of entrance, it was deemed necessary by the older writers to specially designate them; wounds from this source are, however, easily classified under the heads of contused, lacerated or burned. Grazing missile wounds and the form of friction wound known as a brush burn will also naturally come under the divisions of either contused or burned wounds. Since discovery of the part which various forms of pus micro-organisms play in complications of wound healing was made, the condition known as poisoned wound is generally restricted to the injuries inflicted by poisonous snakes and animals, while the term "infected" is used indiscriminately when referring to all forms which have become contaminated by germ life.

The pathology of wounds is the pathology of inflammation, which, with the complications arising therefrom, ranges the entire field of disease change. According to the nature of the implement causing it will the kind of wound produced be determined; falls and blows from blunt instruments cause subcutaneous wounds of a more or less contused nature. Sharp instruments give rise to open wounds and may be simple stab, punctured, or incised, or when more complicated, be contused and lacerated. Punctured wounds are usually deeply incised in character and present some contusion; tooth wounds partaking of the same nature. Contusions follow to a degree all wounds, whether open or closed, due to blows, and are manifested by an area of necrosis which varies according to the force of the blow, the passage of the keenest knife-blade through the tissues of the body leaves behind a track of destroyed cells.

In severe cases of contused and lacerated wounds the injured parts are frequently benumbed and paralyzed so that the patient feels no pain.

The size of a wound does not determine its importance, for a minute break in the skin or mucous surface may allow infection which will prove fatal to the life of the individual concerned. Other factors which lend to the importance of wounds are, location, depth and the condition of the borders. Penetration into joints, cranial, thoracic, or peritoneal cavities add greatly to danger of wounds of these parts from shock or infection.

Local effects of wounds give rise to impairment of function, pain, gaping, when open, hemorrhage, infection taking place, active inflammation followed by suppuration occurs, ulceration, gangrene, erysipelas, tetanus, or diphtheria.

The early constitutional symptom of wound is shock, later conditions, save that of embolus from comminution at the time of injury, will depend upon the nature of the bacteriological infection supervening.

Shock, according to Dr. Shrady, is a jar to the equilibrium of the entire sympathetic system, of which mere pain is oftentimes an insignificant part. Mitchell, Morehouse and Keen add to this enfeeblement of the heart's action through the mediation of the medulla oblongata and the pneumogastric nerves, or to a general functional paralysis of nerve centers, both spinal and cerebral; or finally to combination of both causes. Mr. Longmore characterizes it as the instinctive emotion of alarm which supervenes upon an injury and which he noted particularly after gunshot wounds.

Contusion by pressure is well illustrated in some cases of compression during child-birth; the mother's vagina and the child's scalp showing the effects. Burns and scalds, lacerated and contused wounds such as occur in machinery and railroad accidents, are also commonly followed by this condition. Shock is the commonest cause of early death after an injury, and while young people react very well and females better than males, infants and nervous women are very susceptible to its influence.

The condition, now well recognized, which followed wounds where much cellular tissue is involved, known as fat embolism, in which escaping oil globules from crushed fat cells with the debris enters the circulation, causing obstruction, was previous to the last five or ten years set down to shock.

A degree of loss of function after wounding of a part follows as a necessity, the continuance depending upon the tissue and the extent of the injury.

Pain is a generally constant symptom following wounds, but the amount varies with the locality; wounds of the face and extremities being more painful than those of the trunk. The state of the individual's mind at the time of wounding is also a factor in determining the amount of pain felt. From abstraction or when laboring under great excitement at the time of wounding, pain may be held in abeyance; it is usual, however, for it to come on at once and continue until the parts are put at rest. Nerve trunks severed in wounds may, after the first agonizing pang is felt, cause adjacent parts to become painless; later, owing to inflammatory reaction extending along the trunks, pain will develop, becoming after a few days severe and continuous.

Gaping in open wounds depends upon the tissues affected and the direction of the wound. Nélaton has given the following order in which tissues retract, namely, skin, elastic tissue, cellular tissue, arteries, muscles, fibrous tissue, nerves, cartilage. Tension also affects the amount of retraction to a degree. In a case which I saw of cellulitis of the arm extending from the shoulder to the wrist of a laboring man, and in which a single incision for purposes of drainage from top to bottom along the back of the arm had been made, gaping at the elbow was full four inches in extent. The fact that direction of the wound in relation to the muscular fibers of the parts varies the amount of retraction, is taken advantage of by Dr. McBurney in his operation upon the abdominal wall. By incising each layer separately in the direction of the muscular fibers involved he secures least strain and gaping of the operative wound. In general wounds made parallel to the long axis of the body gape less than those which are at right angles or transverse.

Bleeding accompanies all wounds, though the amount varies with the location and the extent of the injury; wounds of the face, from the number of vessels present and of the scalp owing to the dense structure which in addition to vascularity allows little contraction of the severed vessels, are noteworthy from the free hemorrhage following their infliction. Lacerated and contused wounds are followed by comparatively little loss of blood, owing to the fact that torn and twisted vessels bleed less than those which are smoothly cut.

Inflammation being closely associated with both the pathological and reconstructive processes, it was impossible until the discovery of the factor of pus-micro-organisms, to make a correct deduction of when the destructive gave way to the restorative function.

To properly understand the healing of wounds of any sort it is necessary to notice particularly the rôle which inflammation plays in the reparative process. Formerly considered to be a disease distinct in itself, writers upon this subject, while differing in their explanations of some of the accompanying phenomena, are to-day generally agreed that inflammation represents a series of structural changes following the reaction of a part to an irritant. While the completed cycle occurs most often under the influence of micro-organisms or their products, any form of irritation is sufficient to excite some of the phenomena. Wound healing, therefore, becomes a process of balancing between a mechanical change in the relationship of tissue-texture or destruction of it, and repair. Considered in this light the process is simplified, and the principle, being the same for all forms of wounds, becomes one of mere adaptation.

For purposes of demonstration we will take a case of incised wound as a typical example of what occurs during wound repair. Assuming a healthy body with a clean-cut wound in which the parts are free from germ infection, foreign bodies or clotted blood. and the several cut tissues have been replaced in correct apposition, after a period of quiescence varying from a few moments to a number of hours, a preliminary state occurs which Cheyne observed after making an incision in a frog's foot placed on the stage of a microscope, verified by other observers. He says that in the immediate neighborhood of the wound the circulation is arrested and the movement of the pigment ceases; at the margin of the stasis the blood passes through the capillaries slowly and with difficulty, while the blood vessels in the neighborhood are dilated, and there is increased flow of blood. Exudation of serum and migration of corpuscles takes place, and then the activity subsides and the process of repair commences by entanglement of corpuscles in the *liquor sanguinis.* Coagulation occurs, or in other words the wound surface becomes covered with lymph. Organization and cicatrization completes the process.

Healing of wounds has been particularly studied by Thiersch, Gassenbauer, Recklinghausen, Ziegler and Marchand, and while some counting granulation as a distinct process, it can writers distinguish two kinds of wound healing, be shown that granulation is a mere excess of that which takes place after agglutination in a coapted, incised wound. Tillmanns, describing the macroscopic phenomena occurring in this form of healing, commonly called healing by primary intention, states that the borders of the wound become agglutinated by a coagulum made up of blood and lymph, which during the course of the next four to eight days causes a definitely established union to take place. The coagulum in and around the wound spaces becomes replaced by new cells and blood-vessels, the former of which gradually change into the fibrillar connective tissue making up the cicatrix. In the case of small wounds or slight loss of substance, there is usually developed as a result of coagulation, a crust beneath which the completed healing of the wound takes place. Skinning over of the wound proceeds from the borders by proliferation of the cells of the rete Malpighii and of the sebaceous glands, if the later still exist in the surface of the wound. The young cicatrix at first forms a fine red line which gradually becomes white and softens, so that the scars of many wounds which unite by primary intention often disappear in the course of time. Where loss of substance requires that space should be filled up, as in badly contused and lacerated wounds, or where there has been loss of tissue and it has been impossible to obtain direct adhesion of the divided parts and also in those which have become infected by micro-organisms, healing by second intention or granulation formation takes place with phenomena somewhat as follows: Until the end of 24 hours the various tissues may be distinguished; later the outline is obscured by the gelatinous lymph and by a process of fatty degeneration. The wound being filled up with a reddish yellow fluid, a mixture of blood-serum and lymph, cellular infiltration from the borders of wandering connective tissue cells takes place, increasing until the blood coagulum is entirely replaced. About the third day the wound cleft is found to be filled with tissue almost entirely made up of round-cells, with a small amount of intermediate substance and remains of blood coagulum. Later come large epithelioid cells, being the forerunners of granulation tissue formation and fibroblasts which change into the fibers of the fibrillar connective tissue. Note that these original fixed connective tissue cells and the endothelium of the vessels are the principal sources of cicatricial formation. Nucleii in different stages of division can be demonstrated in the fixed connective tissue cells and in those of the endothelium of the vessels as they undergo rapid proliferation. Some of these newly formed tissue cells can also become wandering cells. The regenerative process within the new-formed tissue mass is likewise carried on by the fixed tissue cells. The leucocytes present either perish by being absorbed by the growing tissue cells or they wander back into circulation. Some of the protoplasm of the wandering cells is used as cell material in both the scar formation and the regenerative process carried on in the original fixed tissue cells.

Reinke believes that further development is possible in those wandering cells which make their appearance after the proliferation of the fixed cells has begun, they being always noteworthy for the great vital energy displayed.

Ribbert holds that single nucleated lymphogenic leucocytes are capable of taking part in the new framework tissue formation by their action of assisting to cover lymph spaces with endothelium.

Marchand states that fibrin is produced by substances liberated by the death of the white blood corpuscles, that the polynucleated cells are retrogressive in nature and have developed from those with a single nucleus, and that further than this they take no part in the formation of new tissue. Sherrington and Ballance maintain that the cicatrix is formed from the cells of the plasma which are nourished by the protoplasm of the leucocytes.

Grawitz considers the so-called dormant cells as being all important in the process of wound repair; these cells which are previously invisible in the basement substance of a tissue become suddenly visible after an injury to the part, their multiplication giving rise to the embryonic germinal tissue from which the new fibrillar tissue of the scar is formed.

Ziegler's and Tillmanns' theory of the formation of fibrillar connective tissue derived from experiments shows that this tissue develops from the fibroblasts as follows: The formative cells are at first round; enlarging they become in appearance not unlike large, round epithelium, or they become elongated and possess one or more processes which anastomose repeatedly one with another. The number of these large cells increasing rapidly, they tend to become packed closely together. The fibrillar tissue is now formed in part directly from the protoplasm of these cells, consequently being of intercellular origin and from a homogeneous ground substance or stroma which had developed previously from the same source. Fibers begin to make their appearance from one or both sides of a cell, or from the extremity or in one of the processes, the formed fibers uniting directly with those from adjoining cells. The nuclei together with a portion of the protoplasm persist and become fixed connective tissue cells. The direction taken by the fibers is usually the same over considerable areas.

The cicatrix is, in the beginning, rich in elongated cells, the remains of the earlier formative cells. The size of these cellular remains subsequently diminishes, the fibrous tissue becoming thicker when the scar is complete. New vessel formation proceeds hand in hand with the tissue growth, in fact, renders further tissue building possible.

Nutriment first comes from escaping plasma, as Thiersch has shown that intercellular circulatory systems may be injected through the blood vessels, proving an intimate and ready connection.

Vessel formation proceeds from preexisting vessels by sprouting or budding. A capillary loop is first noticed to have a granular accumulation of protoplasm at one portion of its course; this increases until it becomes a solid protoplasmic filament which contains a nucleus. This simple or branched process becomes joined either to another end sprout or with the wall of a vessel, or it may arch back and unite with the wall of the vessel from which it sprang. Processes from the spindle- or club-shaped or branching formative cells of the intercellular tissue may join with the vessel sprouts, and thus the material in the formative cells will help in the formation of new blood vessels.

By a process of liquefaction necrosis the solid interior is tunneled, until, meeting with another excavation extending from the opposite end or opening out into a pouch forming in the end of a protoplasmic filament, the capillary loop is completed. The walls of all are at first homogeneous, but nuclei later develop with gradual separation into flat cells which soon become well formed endothelium. By the addition of some of the formative cells the vessel walls are greatly strengthened. Tillmanns believes that the protoplasmic processes from which vessels are formed are made up from the cells of previous vessels and from white blood corpuscles which have passed through the capillary walls.

After the scar has become well formed a shrinkage in the newly formed connective tissue takes place with a consequent disappearance of a portion of the vessels; this causes the red color of the scar to blanch.

From a consideration of that which has gone before it will be seen that it becomes a mere incident, depending wholly upon the nature of the wound, whether more or less of the formative connective tissue is required to fill up the loss of substance following the injury. The granulation formation in an open wound is in nowise different from the vessel loop formation which takes place in a coapted incised wound. The repair of wounds of non-vascular tissues, such as the cornea or cartilage, is practically the same process as that for the vascular. In the case of the cornea there is to be found an intricate system of canals which, being associated with numbers of wandering cells, constitute the groundwork of progressive repair.

The perfect repair of wounds tends to a complete restoration of the destroyed tissue. Wounds of the skin, when injury to the deeper layers has not taken place, if the wound be clean with the development of a delicate scar, may be replaced by almost perfect skin formation save for the hair follicles and sweat glands which will not be reproduced. Much discussion at one time arose amongst the older writers, some of whom claimed that the rete mucosum could not be reproduced after wounding in the skin; but by observing the scars of wounds in negroes it was determined that rete mucosum containing the color pigment of the skin is readily renewed, as shown by the frequency of dark pigmented scars, sometimes blacker than the surrounding skin, occurring in this race. The best formed cicatrices after wounds of the intestines never have produced in them the glands of Lieberkuhn. Ponfick claims that he has seen renewing of liver and kidney substance of animals take place after wounding. That nerve tissue often renews in its entirety is shown by the repeated operations required for neuralgic affections. Mr. Haighton demonstrated the same thing by an experiment; he cut one of the eight pairs of nerves in a dog, later he cut the other side without any ill effects arising, but when both sides were simultaneously cut death followed immediately. Brown-Séquard has seen regeneration take place after division of the spinal cord in a pigeon. Muscle tissue destroyed is replaced by tendon. Astley Cooper found that wounds of the costal cartilages were invariably replaced by bone formation.

Morbid changes occurring in scar tissue may take the form of an overgrowth of the connective tissue element with a resulting extreme condition of deforming contraction. Keloid is a commonly recognized tumor-like formation, occurring upon the site of a cicatrix made up of hypertrophied fibrous elements. Cicatricial ulcers sometimes occur to complicate the progress of a healing wound; they are made up of hypertrophied fungous granulations. According to some observers two layers of granulation tissue are to be noted microscopically in a healing wound, the more superficial made up of vertical capillaries and the deeper containing a transverse meshwork of vessels from which the former originate, coming through a structure more or less dense according to age. Malposition, arising from excess of irritation of the ground network, is the source of this condition.

Pressure paralysis or neuritis sometimes follows the healing of a wound, from nerve filaments becoming caught in the scar tissue. Malignant change from a cause at present unknown at times alters the course of healing wounds.

The treatment of wounds, called by Humphrey the corner-stone of surgery, has marked the epochs of medical advance from a mystic art to a basic science. In tracing the course which physicians followed out in their dealings with wound injuries from the earliest times, one cannot fail to be impressed with the nearness of empiric knowledge to latter-day proven facts. Every procedure had in it a principle which, while often hidden beneath false practice, seems in the light of our time to have been formed upon the highest intelligence. The factor which above all determines wound healing is the presence or absence of friction, or, taken in its broadest application, irritation. Whether it be due to mass motion of the wounded parts, or to the cellular destruction caused by pus germs, failure to secure perfect results will assuredly occur.

In setting forth this principle the author lays no claim to originality, for little thought is necessary to make it apparent that, from the time of Hippocrates to the present, prevention of mechanical irritation to wounded parts has been the aim in treatment. Balsams and oils continue to hold their favor, as they have from the beginning, for the treatment of wounds; the principle involved in the "pouring on of oil" being that of lubrication. Addition of aromatics and spirits which came to be associated, whether understood or not at the time, were clearly attempts to secure antisepsis. How far we have advanced in our clearer vision beyond that of the itinerant surgeons of the Middle Ages who individualized themselves by seeking distinctiveness in the composition of their wound applications, may be shown by the fact that we have to-day no one antiseptic upon which surgeons are agreed that we can safely rely upon all occasions in the treatment of wounds. Bearing this thought in mind the writer would plead rather for a simple treatment, based upon principles calculated from reason that each one may develop for himself.

Every individual has power of healing equally developed over his whole body. Rest of the part, in the broad sense, is the main factor in production of perfect healing for the individual concerned. It has been stated that wounds of the face and scalp heal quicker than other parts owing to increased blood supply. This is fallacious, for practically all tissues have capillaries, and it is these vessels which are the important factors where healing is taking place. I have found that a wound of the back or the leg equally deep as one of the face or scalp will heal as quickly as the latter, when I have secured rest and freedom of the part from irritation. Again, I find in my work that when I am not clean in a wound treatment, those of the face or scalp suppurate as quickly as do other parts. A sterile wound whose parts have been closely coapted without constriction by sutures, or subsequent outpouring of fluid, as when incised, is generally conceded to have been placed in the best condition for rapid healing, so far as it lies in the surgeon's power so to place it.

Friction during the progress of healing of a wound surface is manifested by the outpouring of fluid. Profuse during the early constructive period, it becomes lessened as the granulation formation proceeds, until ceasing the untoward reaction of the wound surface to irritation from motion, bacteria, applications, or dressings is shown by fungoid formation upon the surface which slowly changes into coarse-grained, contracting scar-tissue.

To allow the escape of fluid from a wound various methods of drainage have been devised. The early surgeons, aware that hemorrhage not only endangered life but interfered with healing, employed boiling oil and the cautery, both certainly perfect antiseptics but giving rise to increased wounding by burning.

The theoretical knowledge of control of hemorrhage by ligation existed early, as is shown by the writings of Galen and Celsus, but appears not to have been practised until 1560, when it was brought forward by Paré. While this was an advance in one way it was disastrous for future surgical practice, as it opened the way for germ infection to the wounds so treated. In reading the older writers the one great fault in their technical treatment of wounds seems to have been the absence of thorough mechanical cleansing of the wounded parts. Thinking as they did that they were dealing with a structureless miasma, instead of solid particles, we find some excuse for failure of comprehension of the principal cause of liquefaction during wound healing. Franciscus Arceus, who flourished in 1580, was well aware of the necessity for dry wounds. Writing at this time he says "wounds are not healed before they are dry, as writeth Hippocrates."

Arceus to enhance what Paré had done by ligation invented the method of leaving the ends of a ligature long to provide for drainage and to facilitate its removal; the recognized value of this procedure causing it to continue to be used until the time of Lister proved that it was what was put into a man which defiled him. Arceus was in some respects far in advance of his time, for, though apparently ignorant of the true cause of suppuration, he gave general directions to cleanse the filth away from the wound to be treated. His method of treating scalp and face wounds is worthy of consideration; after applying a "digestive" made of the whites of eggs and turpentine, he fixes the wounded parts by numerous closely laid turns of a thread. Speaking of "tow and lint," the dressing advised for mechanical absorption, he declares it to be but the practice of barbers who go only by " a certain common rule and use no judgment. Arceus used for drainage a fine linen strip dipped in white of egg.

From the setons, tents and a variety of other appliances for drainage of these times but little change was made until the middle of the last century, when Chassaignac invented tube drainage. Neuber of Kiel later introduced bone absorbable drains, which were improved upon by MacEwen, who suggested the employment of hollowed chicken bones for this purpose.

The method of capillary drainage by means of strands of horsehair, silkworm gut, braided silk or catgut, was brought forward by John Chiene, and in the last named substance we have set forth the first example of the principle of the absorbable drain. Kummel uses capillary tubes made of drawn spun glass, Esmarch and Neuber have suggested the employment of channel drains made by so suturing the skin as to form a sinus.

While any of the various methods recommended by surgeons are sufficient to allow the escape of the early watery products of wounding, nothing will drain pus perfectly. If we had any perfect method of drainage it would never be necessary to wash out pus cavities. So-called drains act after the first capillary ooze has ceased by keeping the aperture open.*

That surgeons were ever fully aware of the dangers arising from contained fluids in wounds may be shown by the statement of Lindpainter who, writing in the pre-antiseptic days from Nussbaum's clinic, said it was a standing rule at that time not to suture scalp wounds as rather inviting erysipelas to attack the individual. The other scourges of surgical practice, namely, purulent edema, suppuration, hospital gangrene and tetanus were recognized as arising from retained fluids within wounds. So real was the danger from this source that Pirogoff gave voice to the generally accepted opinion of the time when he said that "the results of wounds are dependent upon chance." In Nussbaum's clinic 80 per cent. of all wounds treated were attacked by hospital gangrene, and erysipelas was so frequent that it was expected. In 17 cases of amputation, 11 died in one year as a result of pyemia developed from virulent wound infection. A complicated fracture meant amputation, which, if not done promptly, meant purulent infection, hospital gangrene or septicemia and a rapidly fatal termination. At Volkmann's clinic at Halle the mortality in complicated fractures was 40 per cent. for him and his predecessors for many years, and in 1871-72 the numbers of victims to grosser infection of their wounds led him to close the wards of the hospital for a time. In 1870, hospital gangrene was the most frequent wound complication, but it is now never seen. Believing that the air was at fault in causing contamination of wound fluid, Schede proposed a method of allowing healing to proceed under a blood clot; recommending that the wound cleft be allowed to fill up with blood, which forming a moist clot becomes gradually absorbed and replaced by scar tissue if sepsis does not interfere.

With the idea in view of removing the danger from retained wound fluids there arose a number of surgeons who advocated the so-called open method of wound treatment, Kern of Vienna at the beginning of the last century being of the first. This practice was revived by Bartscher and

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* New York Med. Jour., Feb. 16, 1901.

Verzin in 1856, who simply stopped hemorrhage, then applied damp cloths to the wound surface until granulation was well advanced, when the parts were drawn together and held bv adhesive strips. Rose, whose results have been dwelt upon by Kronlein, adhered to Bartscher's and Verzin's method but in addition daily washed out the wound. Healing by scab formation is closely allied to the open method of wound treatment as carried out by Bouisson, who dried wounds by blowing currents of air upon them for periods of fifteen minutes three or four times a day. This he called "ventilation treatment." If the retention crust softened to release fluid, powder, such as starch, alum or flour was dusted upon the open surfaces to cause renewed crusting. Neudorfer employed pulverized salicylic acid mixed with starch or zinc oxide as dusting powders to cause crust formation by rubbing them up with the wound fluids. Kocher advised the use of dusting powders for the purpose of absorbing fluids, recommending bismuth subnitrate powder mixed with a small quantity of water. Burow of Königsberg in 1859 attempted the cure of wounds by drawing them together with adhesive straps after allowing them to thoroughly glaze by exposure to the air for a number of hours previous to closing. So manifestly inadequate were the results obtained by the methods in vogue that Gamgee writing of 100 years ago said that primary union after amputation was scarcely dreamed of; the ligature for hemorrhage but partially and imperfectly employed, and dressers required to sit up all night to flour discharging wounds. As late as 1875 we find Nussbaum assailing hospital regulations which limited poor patients to but nine weeks' stay in the wards after operations upon the breast which required from three to six months to heal.

The new life given to surgery by Joseph Lister, who, instructed by the researches of Pasteur, Schwann, VonDusch, Tyndall, and preeminently bv Robert Koch, demonstrated the practical control of germ life upon a wound surface, came none too soon. In spite of concerted opposition of many who believed with Tait that "the wholesale and reckless application of the germ theory is alike mischievous and misleading," wound treatment instead of resting upon chance became subject to fixed laws. Advancing from the use of balsams and oils certainly to a degree antiseptic though directly injurious when used at boiling temperatures, to carbolic spray, oil, and putty mass, we see these in turn giving way to the watery solutions of carbolic acid and bichlorid of mercury.

An appliance which to-day, though in general use for preparing instruments and dressings, has not had its powers of germ destruction fully developed, is hot water. From time to time surgeons have endeavored individually to set forth its value as a direct application to wound surfaces. Poiseuille, by his experiment upon the web of a frog's foot, demonstrated the rationale of hot water treatment of wounds. He found that if the foot be covered with water heated to 104° F. the rapidity of the current in the capillaries is so much increased that the form of the corpuscles becomes indistinguishable, proving thereby that unless the water is of high temperature infected wound surfaces by absorption of the products of germ growth would be harmed instead of benefited by the use of this agent. Varick uses water at a temperature slightly below that of the boiling point and has demonstrated that when protection from scalding of the skin is secured by care in handling, the deeper tissues will be unharmed by the heat save for the formation of a coagulation membrane which causes oozing to cease and the wound to become glazed by the cooking of the albuminous elements in the superficial capillaries. Varick founds his treatment upon his experiments with serum albumin which coagulates at a temperature of 183° F. He demonstrates that water under this degree of heat should not be used in wound treatments if best results are to be obtained. In the treatment of tuberculous joint wounds by boiling water used with precaution to prevent scalding of skin surfaces, we have a method of great value. Dr. Stephen Smith has recited to me the history of a case of old suppurating sinus of the knee-joint which, while doing well under this form of treatment, nearly precipitated a suit for malpractice, owing to sloughing which followed scalding of the other leg from the draining water. O'Callaghan in upholding hot water treatment, stated that true antiseptic surgery meant absolute cleanliness and that his success was due to flushing wounds with hot water at 118° F. Hemostatic action without coagulating film protective formation may be secured by the use of water as hot as may be borne without pain: 125 to 140° F.

To assist in carrying off draining fluids and for protection and support of wounded parts various forms of dressings are employed. The most common are dry and moist sterile gauze, or the same impregnated with bichlorid or carbolized solutions; gauze which has been treated with iodoform or some of the various dusting powders; patent lint and absorbent cotton. A substance which has gained a well recognized place as an adjunct dressing is rubber tissue, but it is seldom put to its best use, namely, as a protective coming in direct contact with the wound surface. Rubber tissue as now made is membranous in quality and comes nearest to being the ideal application to a wound surface; applied in the form of small, narrow strips, laid on like shingles protection to the granulating surface is afforded while allowing escape of discharge to take place. Wounds which may be closed the entire length of their skin surfaces give little concern to the surgeon after having been rendered sterile, accurately coapted and put to rest, while those which are more or less open require his best thought to obtain rapid healing, the value of a method being proven by early restoration with resulting well-formed scars which show no tendency to undergo morbid change or progressive contraction.

An application to an open wound, whether it is made during the early relaxed stage from the direct injury which caused it, at a later period when the reparative forces are progressing under forming granulations, or into the final scar tissue formation, quickly shows its value as an adjunct in removing extraneous matter. This is all that the best so-called healing agents can do. Nature will repair so long as cell vitality remains in the parts and the best the surgeon can do is to secure rest, coapt and set the soft parts as he sets and fixes fractures of the bones, prevent the infection of the parts by germs, which is the most common form of wound irritation, and then adhere strictly to a policy of non-interference with the reparative process, unless for some good reason. Rest in wound treatment is not sufficiently demanded as a routine. A scab upon a sterile wound becomes a perfect splint and when possible under these conditions should be encouraged, but the reckless use of the numberless forms of dusting powders which, caked over wound surfaces, irritate more than they absorb, proving their inadequacy, cannot be commended. Too often from this method, and from the various scabbing mixtures applied most frequently to wounds about the face and scalp, result mere walled-in chambers of media for pus development.

Rest of the hands by means of slinging is not sufficiently demanded from patients suffering from wounds of these parts. Aside from the manifest comfort to be derived from this, there is, less danger of becoming infected if free, or of increased infection if pus germs are already present by reason of engorgement from lowering the limb.

Various are the direct applications in the form of solutions which surgeons are in the habit of advising to be made to wound surfaces. Of the carbolic and bichlorid solutions it must be said that they are required to be too strong, and hence become irritants in themselves, aside from any virtue they possess of destroying germ life. Watery solutions, made directly or upon saturated cloths of gauze, fail of their purpose by the amount of relaxation and maceration which they cause. If an outer covering of sheet rubber tissue be applied the condition is made worse by a direct bid for pus development being made. Heat, moisture and the presence of the germs are the three factors necessary for pus development upon a wound surface; the germs themselves are ever present, and to supply the other factors in the combination by this too common practice simply furthers the process, and the wound heals in spite of and not by the assistance of the dressing.

Moisture should never be applied to an open wound continuously in the form of a dressing; a dry wound is a half healed one and it is fallacious to suppose that moist gauze will drain pus any more than dry. A wound which requires dressing must, if it lead into an abscess cavity, be washed out sufficiently often to prevent refilling and to induce continuous contraction.

Gauze, patent lint, or cotton used either dry or moist to open sterile wound surfaces prove their irritating properties by destroying the glaze, increasing discharge and by adding to the purulent discharge in an infected one, as may be proven by comparison with the use of membranous tissue applied in the manner which has been described. An agent by whose use I have been enabled to obtain clean wounds causing least irritation and thereby securing most satisfactory healing is hydrogen dioxid. According to Houssell of Tübingen a 3 per cent. hydrogen dioxid solution is equal in power to a - to 1,000 bichlorid solution, acting on bacteria suspended in aqueous solutions; but hydrogen dioxid is superior to it in media, rich in albuminous fluid, but poor in cells. Where the latter predominate it is again on a par with the solution of sublimate. By this it is proven a recognized value as a germ destroyer for if used in solutions of 10 to 20 per cent. its power is pronounced yet without ill effect. In such strengths pain and danger from forcing living organisms within the deeper wound-spaces will be minimized when the solution is used in sinused wounds. In common practice the drug may be used in full strength or diluted to one-half or one-quarter its strength with sterile, cold water, with prompt and apparent benefit to an infected wound or to one which presented for first treatment appears to be clean, after a thorough but gently done mechanical cleansing of the parts as a preliminary routine precaution. Drying a wound with sterile gauze previous to suturing when this procedure is necessary, assists healing by removal of the capillary ooze, until the pressure of external dressing can be applied. Dr. Wyeth, before closing wounds in operations upon the breast and those of similar character, is in the habit of packing a piece of sterile gauze in the depths of the divided parts; suturing over this and leaving the last two or three loose to facilitate withdrawal of the gauze and secures the minimum of retained fluid by the application of steady pressure made by an assistant's hands until the dressings are in place.

Subcutaneous wounds where impact has caused coagulation to take place, as after contusions and deep punctures, are best treated by moist dressings, but the value of the dressing lies solely in the degree of heat which is maintained. Extremes of temperature are required, as the chief virtue of the treatment lies in an inhibition of the assaults of germs within the outer layers of the skin gaining entrance to the deeper parts, and unless the action maintained is over and above the amount of maceration caused, the treatment becomes to the same degree useless or directly harmful. It is this principle which demonstrates the value of a daily, continuous submersion treatment for infected wounds by means of baths of either hot or cold water.

Summary.—The consideration of wounds in one form or another makes up the bulk of a surgeon's practice. The series of phenomena known as inflammation is intimately connected with wound repair and it is only since the discovery of the part which pus micro-organisms play that the relationship between the destructive and constructive processes in wounds has become clearly understood. From a consideration of the work of Thiersch, Ribbert, Recklinghausen, Ziegler, Marchand and others it becomes evident that that which takes place in a coapted, incised wound is carried out simply upon a more extended scale in an open one. The perfect repair of wounds tends to a complete restoration of the destroyed tissue. Morbid changes occurring in scar tissue when due to excess of friction or irritation during the repair are manifested by a commensurate overgrowth of the connective tissue element with resultant deforming contraction. Wound treatment seems to be based more upon the individual whim of the surgeon than upon the well-founded principles which time has proven. The one opponent to perfect healing of a wound is friction, and that this was clearly understood by the early physicians is demonstrated by their treatment of wounds by balsams and oils, later by the addition of bulkier bases constituting salves, thus affording support for lubrication. Every individual has powers of healing equally developed over his whole body. Rest of the part, in its broadest sense, with freedom from irritation is the end of treatment. The more delicate the manipulations of the surgeon during a wound treatment, the better will be the result gained. Splints are as necessary in the treatment of wounds of the soft parts if quickest possible healing is desired, as after fractures of the bones. To allow the escape of fluid from a wound surface various methods of drainage have been devised; when natural drainage is impossible, rubber tubes, wicking of gauze, rubber tissue, catgut, silk or horsehair may be used. It is an open question in regard to securing drainage of the peritoneal cavity after wounding; natural drainage or absorption seem to be in the line of reason. The power of the peritoneum to repel attacks of germ invasion is great, much greater than that of muscle or subcutaneous tissue, and it would seem to be a distinct advantage in these cases to withhold foreign bodies in the form of so-called glass, gauze or rubber drains whose chief function appears to be that of exciting exudate, as a pus germ has a better chance to make a successful fight in a belly cavity floating around in a serum media than when closing with a phagocyte glued to an endothelial surface.

No appliance in use to-day will drain pus perfectly. By elevating the head of the bed one to two feet, securing the patient by slinging under the arm, Fowler of Broklyn causes gravity to assist drainage of the abdominal cavity with results unobtainable by other methods.

The furtherance of healing is secured by dry wounds and the correct principle was manifested by the older surgeons who allowed open wounds to first glaze before drawing their several parts together. Hot water used at proper temperatures may be made an important factor to assist in the healing of wounds. Antiseptic solutions applied to wounds act as irritants, owing to the strength required to destroy germs. Dusting powders are irritating to wounds, as proven by the discharge which they cause. The best direct application to a wound surface after cleansing the parts by hydrogen dioxid is membranous rubber tissue applied shingle fashion. The treatment of punctured wounds, which are ever endangered by the complication of tetanus, by forcible syringing of hydrogen dioxid acts in the manner of an antidote. Moisture in the form of wet dressings should never be applied to open wounds. Subcutaneous injuries created by wet applications should only be made through light dressings to allow rapid evaporation to take place after each treatment, which should consist of immersion in solutions of the extremes of temperature. The virtue of this method is the inhibition of the activity of germ life, constantly active in the outer layers of the skin, by preventing its progress into the devitalized tissues beneath. The principle acts in a similar manner in the treatment by submersion for infected wounds.

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THE IMPORTANCE OF DIAGNOSIS IN SKIN DISEASES CONSIDERED GENERALLY AND AS APPLIED TO PARTICULAR DISEASES.*

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To most practitioners of medicine the art of skin diseases is an unknown field, full of pitfalls and marked with the suggestions of difficulty and helplessness which befall the ignorance due to lack of education in this branch of medicine and surgery. The habit of comparison and of attempts at remembering experiences in diseased conditions is common with medical men and while this may obtain with diseases in which the subjective symptoms are mostly depended upon, with skin diseases it is invariably the real stumbling block in the diagnosis.

The diagnosis of affections of the skin is essentially one of analysis and that sort of analysis which characterizes the work of the naturalist who differentiates flowers and the organisms of the lower living types. Differentiation with skin diseases must be deductive and by exclusion. It is impossible upon gross evidences in any morbid condition of the skin to make the diagnosis and the failure is often attributable to this habit.

For many years the Vienna school in dermatologic questions was the dictator, and there the rule was to make the diagnosis on objective evidences almost regardless of contributory symptoms. More recently the French school has demonstrated the direct relation between internal or indirect factors and local evidences so that to-day the progressive dermatologist must lean on both methods. It remains, however, that the objective is certainly the basis upon which the diagnosis must be built, while to the subjective elements must be assigned the final confirmation. After several years in teaching skin diseases the writer has arrived at the conclusion that it is a difficult matter to carry men back to the A B C methods after they have graduated from rhetoric practice. So what may follow may not appeal to those of you who are fixed in your own ideas of diagnostication and who are apt to be captious of another way which may not seem so easy.

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Every skin disease is the expression of a morbid change in the normal arrangement of the cell structure of the skin, either for the time or permanent. No two diseases of the skin present exactly the same characteristics in the expression of this change. There is, therefore, some difference in the manifestations of this change, and this difference must be evident in one or another way. If evident it should be distinguishable, and being distinguishable it should establish the difference and make the diagnosis. These elements of difference should have some fixed points of definition and the careful study of each of them should always show the very line at which the variance is found.

Every skin disease is divisible into the parts which comprise it: (1) With reference to the body as a whole; (2) with reference to the part or parts of the body on which it occurs; (3) with reference to the individual anatomic elements in the given eruption; and besides these objective points of distinction there are elements of (4) sensation and of (5) habit. Such is the basis on which exactitude is raised until a precise diagnosis must follow. Upon these elements points of difference are carried to a final exclusion. Briefly considering the divisions of the classes of skin diseases with reference to these points, we already see some light in clearing up a diagnosis.

Parasitic Diseases: (A) *Vegetable.*—Limited and irregular with selection of particular parts of the body; say, the scalp, head, flexures and legs. (*Animal,* general almost always.)

(B) Irregular in distribution, but following the lines of least resistance.

(C) Always distinct, the vegetable being essentially characterized by a tendency to form patches of circinate eruption made up of scales and hyperemia only; animal essentially papules or vesicles depending on the cause, but each distinguished by its location and distribution—*e. g.,* scabies occurs in the folds while pediculosis occurs on the extensors.

(D) All are itching diseases.

(E) Usually has no relation to disease except so far as contagion is concerned, which may not often be proven.

New Growths: (A) Usually limited; exceptionally on more than one region (*e. g.,* syphilis and leprosy).

(B) Usually single and irregular (in syphilis and leprosy the extensor surfaces are selected and particularly the extremities).

(C) Marked by tumors and ulcerating lesions, single or grouped in clusters or arcs.

(D) Pain or absence of sensation (leprosy).

(E) History usually obtainable in the malignant diseases.

With these two examples the evidence is clear that the differences between new growths and parasitic diseases are clearly defined in almost every one of the elemental points. Yet it is no uncommon experience for the diagnosis of ringworm to be made in cases of spreading tubercular syphilides when there could be no point of resemblance excepting in the gross appearance. The presence of the tubercles in the eruption of syphilis should at once forbid the other diagnosis and have it excluded from the entire group of parasitic diseases by the elemental lesion of the tubercle which is so characteristic a part of the group of new growths.

So each of the other divisions of the skin presents its own characteristics, separating it from all of the others in some or all particulars. It is only when we reach the large class of inflammations of the skin that the task is more difficult but none the less secure. This is the division of skin diseases which, in the unwritten classification of these affections, with the general practitioner, is usually called eczema, and most of them are satisfied to let it rest at that. It makes little difference how multiform the evidences, nor how widespread the lesions, nor how pathologically different, the term of eczema has gotten to be far-reaching; so far-reaching that seven out of every 10 patients who call at the office or clinic with any skin disease will answer the question, "What troubles you?" with, "I have eczema." It may be an ulcerating syphilide or a simple seborrhea—it makes no difference; the term "eczema" is now the vulgar synonym for "skin disease" and, with "tetter" in the vernacular, covers a multitude of diagnoses as it does of sins.

I have no intention of being didactic or dogmatic, and my paper has been written largely as a plea for a better intelligence in the diagnosis of skin diseases. The confusion of eczema with any other skin disease is not excusable and this is the keynote to the whole question. Too little pains are taken in making a diagnosis and too much indifference is entertained and shown in the care of these cases so long relegated as the result of vice or dirt and neglected because they seldom killed anyhow.

Eczema is essentially a catarrhal process and with the evidences of such. Even when a chronic condition of eczema transpires it still presents the same sort of an hypertrophy as a catarrhal condition elsewhere and with the same sort of symptoms. From the hyperemia which shows the first blush of the disease, the swelling, burning, and itching, erythema, papules and vesicles—each too short-lived to be distinct and both quickly giving way to the exudate of serum which breaks through the thin epidermal covering and shows in crusts of amber on the surface, here and there falling or, by scratching, being torn away—on through the changes due to constant exudate, lack of epithelial activity, crusts of more and more thickness—down to that state of infiltration of a sodden, pitting skin, eczema preserves its identity and separates itself beyond confusion with any of those diseases which through mistake and carelessness bear its name.

Nature is exact in all other skin diseases as well. The accidental bites of insects so promptly define themselves that there is no need of finding the insect to prove the bites. The ubiquitous mosquito usually bites to feed and when let alone or when not hurried makes a neat puncture of the papilla and leaves behind a tiny hemorrhagic spot to show its skill—sometimes covering, with the assistance of its kindred brood, a whole face in the execution; otherwise, the proboscis misses fire and breaks the skin between the fructive hills and then edema, toxic swelling, burning, itching and a phrase or two of impolite invective mark the flight of the culex or his cousin anopheles. Even here nature distinguishes, for in the edema of a mosquito bite, the edges of the wheal are irregular and the hive itself is reddened often, its size irregular. The flea bites twice and always makes small lesions, rounded wheals, and uniform in size. The bedbug bites but once and usually dies in doing so; so the lesion makes this effort in a large rounded almost spherical elevation, sometimes as big as a half dollar, with an aureola around the wheal as large again as the lesion itself. The spider bites with toxic intent and not to suck blood, and he leaves behind an inflamed area, usually as large as half a dollar in size, in the center of which is a pea-sized wheal, or edematous area; in the center of this again is found a tiny blister where the insect struck. Even, then, in the lesion, that small pathologic symbol of the offense to Nature, each of these shows the points of definition.

When leprosy finds a diagnosis of eczema and of erysipelas, and when the scabies of the ancients is diagnosed as syphilis and the patient salivated again and yet again without a cure; when impetigo (the common "Indian fire" of the vulgar, and old-time *ignis silvaticus*) is diagnosed smallpox and when acne is called syphilis, again this earnest plea is made for more attention to detail in diagnosis.

Every summer come to the physician patients with deep-seated vesicles, grouped in, clusters running along the sides and soles of feet and spreading over palms and fingers of the hands, telling the story of "relapsing eczema;" when the diagnosis of a sweat gland eruption is patent to every man who looks twice; vesicles, clear fluid, grouped along the line of distribution of blood vessels, bilateral, no redness (at first), some itching, more burning; history of same eruption with the changing weather, especially every summer, sweating feet and hands and occupation either sedentary or exposed to weather.

Eczema, on the other hand, begins hyperemic or vesicular, on a hyperemic base; the vesicles break promptly, so promptly that often you cannot distinguish them.

The diagnosis of "Indian fire" is so easy that every old mammy can make it out, and yet it is confused with smallpox. A superficial vesicle is the initial lesion—growing quickly into a larger pustule, flabby walls, crusting, and the crust falls, leaving a smooth shiny spot, limited to the epidermis as a rule; while smallpox begins as a papule deep-seated and, even when pustulating, seldom grows larger except in confluent type.

The evidence of experience points to the fact that the mistake in diagnosis is most often due to the failure to recognize the component parts of a given eruption. Until the difference between a vesicle and papule is known, it is impossible to distinguish a particular vesicle or a certain form of papule as peculiar to a disease under consideration. For example, the fluid lesion of pemphigus is entirely different from that of pompholix, the sweat gland disease, which we have discussed above, but the diagnosis of pemphigus is commonly made in all eruptions of large fluid lesions, or bullæ. As a matter of fact pemphigus is a rare disease and most formidable in its course and outcome. The fluid lesion of prickly heat is commonly recognized, but when the same lesion with less inflammation shows in that same pompholix at its initial stage the diagnosis of eczema is made almost without exception. Almost all erythematous eruptions when localized are diagnosed erysipelas, just because of the redness and the limited area involved.

It is impossible in the space and time at our command to cover the whole field of diseases of the skin, but we wish to conclude with the plea for a more earnest effort at diagnosis and with a summary of the essential points involved. No treatment can be called specific in skin diseases and whatever treatment may prove successful must be directed at the origin of the disease. This can only be determined by recognizing the morbid evidences in detail and in their relation to the individual afflicted.

Now there are these cardinal points in the diagnosis, and we can present these as our climax: (1) The location of the disease is the first point of study; (2) then the distribution on the particular region on which it occurs; (3) the arrangement of the component parts, or lesions. The lesions themselves must be studied in detail so as to classify the disease.

Besides these cardinal points there are certain points in diagnosis which are important in their value as guides.

(*a*) Eruptions which are bilaterally symmetrical are either constitutional in origin or are exposed to the identical local cause on both sides of the body.

(*b*) Parasitic diseases are found on the flexors preferably, or on the exposed parts of the body.

(*c*) The more chronic diseases of the skin become the deeper the color; on the other hand, the brighter and more vivid the color the more acute the disease. Scales are the evidence of chronicity; likewise ulcers and scars.

(*d*) Fluid lesions seldom itch. Papular eruptions almost always itch.

(*e*) Single ulcers are almost always syphilitic, trophic, traumatic or malignant; multiple ulcers are tubercular, syphilitic, or malignant.

(*f*) On the face ulcers are seldom due to other causes than cancer, syphilis or tuberculosis.

(*g*) The color of eruption on the Caucasian is always important in diagnosis. Syphilis is pigmented brown or buff as its eruptions fade or disappear. Leprosy is always shaded brown or purple. Lichen ruber is always violaceous or white. Psoriasis is always pale red covered with white scales. Seborrheic eczema is always yellow red with greasy scales.

(*h*) The odor in skin diseases is important. Syphilis, when ulcerating, smells rancid; favus smells mousy; varicose ulcers smell sweet; neurotic ulcers, or those of leprosy are nauseous, foul and intense; rodent ulcer has a smell of rotting meat.

Fothergill once stated that a glance at the patient as he came into the consulting room often helped a long way in the diagnosis. It was he, as well, who referred to the belief that the facial expression of pain and anxiety pointed to some disease below the diaphragm, while a smooth unruffled, except sad, countenance told a diagnosis of thoracic disease. In dermatology, the glance will not suffice. The examination must take the disease first and the patient afterwards. With the human skin as a map and the eruption as geographic points, it requires exactitude to find and fix the disease in its proper limitations.

ADVANCES IN OPHTHALMIC THERAPEUTICS.

BY D. B. ST. JOHN ROOSA, M.D., LL.D.,
OF NEW YORK.

OPHTHALMOLOGY has been peculiarly fortunate in its local therapeutic applications. They have been singularly well adapted for the purposes intended, and act, as a rule, without local or general disturbances. We have only to instance the preparation of the atropa belladonna, which still easily holds, in the form of sulphate of atropia, the first place as a mydriatic, and also as an antiphlogistic, in iritis and keratitis. Then came the exceedingly convenient hydrochlorate of cocaine, for its purposes of anesthesia, which also, like atropine, holds its place in the very first rank, in spite of all the attempts made to improve on that which scarcely needed improvement. As substitutes for atropine, homatropine and scopolamine have some position. The former is chiefly used by those who secure paralysis of the accommodation, in order to fit the eye with glasses, for which purpose homatropine has decidedly an advantage over atropine, in that it causes less inconvenience to the patient on account of the comparatively short time that its paralytic influence is exerted. But in these days paralysis of the accommodation in order to secure the adjustment of glasses, is not insisted upon—in fact, not at all required, by many practitioners, so that homatropine has become more limited in its use, it being decidedly inferior to sulphate of atropia, as an antiphlogistic, or where a permanent dilatation of the pupil is desired. Scopolamine may also be employed in those fortunately rare cases, where belladonna is not tolerated. But, as has just been intimated, atropine continues to hold the place which it has held for so many years, as a most efficient therapeutic agent, in iritis and keratitis, with very few exceptions to its usefulness.

Euphthalmin is a valuable agent for securing transitory dilatations of the pupil, for the purposes of ophthalmoscopic examination, and seems to be attended with very few, if any, harmful effects, and these few are entirely exceptional.

It may be considered a truth that most mydriatics, especially atropine, are not without danger, in cases of latent glaucoma, and, therefore, must be used with caution in those who have any, even remote symptoms of that direful affection. But the fact of the mere matter of the age of the subject should bear no influence in declining to use atropine in keratitis and iritis.

The substitutes for cocaine, holocaine and eucaine have been thoroughly tried by the profession, especially by those who claim to have some reason to be dissatisfied with the effects of cocaine, but with the result that they are found to have more disadvantages than the merits which were claimed for them. Eucaine, for example, is more apt to create hemorrhage than cocaine. As to the local anesthesia, in the opinion of the present writer, nothing more could possibly be desired for operations upon the conjunctiva or cornea, than can be accomplished with cocaine. It is true that in iridectomy for glaucoma, where the incision should be in the scleral ring, and where the iris is cut, we must still resort to a general anesthetic. Then even in this operation we are confronted by the occasional occurrence of phakitis, even when the knife does not touch the lens. But the substitutes for cocaine have no advantage whatever over the local anesthetic, whose great properties were discovered by our fellow townsman, Carl Koller.

When the aseptic and antiseptic discoveries were made, ophthalmologists hesitated, perhaps more than other surgeons, as to the employment of the special antiseptics, such as carbolic acid and bichloride of mercury. But finally bichloride of mercury achieved a prominent place, and the majority of surgeons prepared an eye for operation by the use of weak preparations of a bichloride upon the conjunctival sac. The writer of this paper was one of those who clung to a belief that this was not only useless, but positively harmful, in an ordinarily healthy conjunctiva; and as yet, he never has made use of bichloride solutions, however weak or however strong, in operations upon the conjunctiva, or the interior parts of the eye. Sterilized water has been the agent with which he has been entirely satisfied, and he is ready and glad to report that a very large contingent, as least, of ophthalmologists, have come back to the original conviction, when antiseptics became generally used in surgical operations, that, given a healthy conjunctiva, the microbes, in an operation performed with clean instruments (that is to say, thoroughly sterilized instruments), are quite sufficient to insure an aseptic condition. The eyelashes, however, continue to be thought by many, even when the conjunctiva appears to be entirely healthy, as a possible source of infection, and, therefore, biniodide of mercury, 1-400, in sweet oil, according to the method of Panas, is used as an ointment to the lashes 24 hours before a cataract operation. This great authority in ophthalmic surgery long since abandoned injections of solutions of biniodide of mercury into the anterior chamber. A conjunctiva that is not healthy, especially one that is infected from a lacrimal disease, should not be operated upon until with one of the old, well-known and still highly-valued ophthalmic agents, sulphate of zinc, sulphate of copper, sulphate of alum or tannic acid, with an operation on the lacrimal apparatus, if required, the eye has been put in an aseptic condition. This is an important subject in ophthalmic therapeutics, which our recent knowledge makes imperative. No man in his senses would think of operating upon an infected conjunctiva for the extraction of cataract, where everything depends on a prompt healing of the wound.

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* Read before the American Therapeutic Society, May 14, 1902.

While the agents above enumerated continue to hold the same position that they did with our predecessors in the treatment of inflammations, there has been a great addition to our resources for purulent conjunctivitis, in the preparation known as "protargol," a silver compound, as you all know, consisting of about eight per cent. of silver combined with protein. It is pretty well established by the reports from the Massachusetts Charitable Infirmary, by Dr. Miles Standish, and from the oral statements of surgeons of the Manhattan Eye and Ear Hospital and other authorities, that this agent in a 20 per cent. preparation is of exceeding value as a substitute, in a large proportion of cases, for nitrate of silver, as it is much less irritating. It may be also a much more frequent application than nitrate of silver. Dr. Engelmann of Bonn, reluctantly however, reports the bad results in the instillation of protargol for the prophylaxis of ophthalmia neonatorum. By the Credé method he produced silver catarrh in over 48 children.*

A new remedy intended to give assistance in the performance of operations upon the conjunctiva, which is undergoing thorough trial, with an apparently general approval of the results so far obtained, is a solution of the adrenalin chloride, 1-1000, being a solution of the active principle of the suprarenal gland.

It has been for several years known to the profession, especially to the researchers of *Abadie*, that subconjunctival injections of bichloride of mercury are sometimes serviceable in inflammatory conditions of the eyeball, of the iris and choroid chiefly. Of late, normal salt solutions (chloride of sodium), from one to two grs. to the ounce, in water, are being used with apparently as good results; and recently these have been employed for that hitherto incurable affection, simple atrophy of the optic nerves. Only isolated cases are reported, and it is altogether too early to give this means of treatment a permanent place in ophthalmic therapeutics.

In trachoma, mechanical treatment, pressure and removal of the trachomatous bodies, with subsequent use of the bichloride, continues to hold a firm place as a substitute for the prolonged treatment by sulphate of copper. Jequirity, however, retains its place among certain surgeons for trachoma with pannus. The treatment of strabismus has received a new impulse by the method of Panas of preliminary stretching of the muscles before division and the performance of a bilateral operation.

I may conclude this sketch of what may be considered some of the advances in ophthalmic therapeutics, by an allusion to an operative resource which is now undergoing trial at the hands of the profession, that is, resection of the cervical sympathetic ganglia for glaucoma. In the unsatisfactory condition of the therapeutics for chronic simple glaucoma, every ophthalmic surgeon will warmly welcome any efficient addition to his therapeutic resources. The brilliant results in acute glaucoma from iridectomy remain, however, as they were first given by Graefe after his epoch-making discovery. The operation is one that may be undertaken by any well-trained surgeon, for although an important one, and involving very careful dissection, it is, as stated by one of our New York colleagues, Dr. Marple,* a safe procedure. It is certainly also sure that some glaucomatous cases have been improved for months, when eserine and pilocarpine, the well-known agents of a few years back, have failed, and where nothing could be hoped for by iridectomy or sclerotomy. Dr. Webster of New York reported one such case at a recent meeting of the New York Ophthalmological Society.

This brief résumé, gentlemen, I think, is sufficient for its object in demonstrating that, like our brethren in other departments of medicine and surgery, the ophthalmologists are in the front line, eager for an advance in any direction toward the overcoming of anything that is an obstacle to the prevention or the cure of disease.

American Association of Obstetricians and Gynecologists.—At a meeting held in Washington, D. C., last week, Dr. Lehman H. Dunning of Indianapolis was elected President and Dr. Herman E. Hayd of Buffalo Vice-President. Chicago was selected as the next place of meeting.

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* Ephemeris, Jan., 1902.

* Med. Rec., May 10, 1902.

BRONCHIAL ASTHMA AND ALLIED DISORDERS; THEIR SUMMER TREATMENT.*

BY BEVERLEY ROBINSON, M.D.,
OF NEW YORK.

To some medical practioners, I am glad to say, the existence of cases of purely nervous asthma, although admitted, is regarded as relatively very infrequent. The great majority of cases seen by us, in dispensaries, hospitals, and even in private practice, are already accompanied by evidences of bronchitis—acute or chronic—not to speak of the frequency of conditions which may or may not be considered as complications. This statement being admitted, I shall not take time to discuss the different theories of asthma. In the first place, you all know them as well as I. In certain cases undoubtedly, one theory seems the more rational—in another patient it is very unsatisfactory to explain signs and symptoms.

Asthma is a symptom of many allied conditions, as a rule; it is explained by none solely. At times, the nervous substratum, hereditary or acquired, is most pronounced; again, it is not evident even after considerable enquiry and research. The cause of the attack may be direct, sufficient and clearly defined; often it is distant, obscure, badly determined. What is true and admitted of all is the manifest indication to relieve acute dyspnea when present, as rapidly as one can, provided always it is done rationally and without causing immediately or subsequently, avoidable injury to the patient.

In general terms, an injection of morphine and atropine will relieve very many urgent cases. There are, however, exceptions and in one instance in my experience, it aggravated the symptoms in a marked degree. Inhalation of nitrite of amyl frequently also affords great and immediate relief. Here again, I have known it on one occasion to give no relief, and within a brief period and despite active and repeated stimulation, the patient died. I might continue in this line, and speak of inhalations of chloroform, ether, chloride or ethyl and other anesthetics. Also, I might laud the effect in acute attacks, of inhalation of cigarettes, papers, powders—formed essentially from well known narcotic or antispasmodic drugs. Sometimes they relieve in a remarkable and rapid manner. After a while, and although they were at first useful, they lose power in this respect, and cannot be counted upon even for solace. Of the numerous drugs which have been vaunted to lessen the suffering and shorten the duration from the acute attack, while diminishing its frequency and lessening its later intensity, none in my judgment is so valuable as idodide of potash. It may be given by itself, preferably in milk or junket as a suitable menstruum and in moderate or large doses. In almost all instances where the suffering is acute or only moderate, it should be combined with Hoffmann's anodyne. Thus we obtain effects from the useful expectorant properties of the iodide and the stimulating and antispasmodic qualities of the ether compound at the same time. After all, however, the treatment which is most important is the preventive one, if possible, of the recurrent attacks. And to effect this we should, of course, consider all individual factors involved, but even then the influence of climate for good or for evil, is primary.

About this matter, there exist some received but lamentable errors. In the first place, it is stated that asthmatics do better at times in the city than in the country; that the more or less contaminated air of the former prevents or shortens their attacks. This I do not, cannot believe—and certainly in a fairly wide experience, I have seen and heard nothing which proved it to be true. No doubt there are rare instances where in a given locality, seemingly the most unfavorable, an asthmatic patient has had the experience of an attack being shorter, less violent than usual—or indeed, not to have had one recur for months or years perhaps. When, however, these rare cases are thoroughly sifted, it will be found that the true solution of such singular or startling facts, resides in a matter easy of explanation in a satisfactory way. It is stated also, that one place or another in the country is especially good for an asthmatic patient—just as it is affirmed that this or that spot is particularly favorable to sufferers from hay fever. My own experience, observation and reading would prove in general that it is an erroneous belief. The place that suits a well man best frequently suits an ill man best, but with asthmatic patients particularly, the individual search for this place must be made, and judgment about it only definitely fixed after several trials and much previous uncertainty. I have been in the habit whenever I could properly do so, of sending my patients with catarrhal disorders of the respiratory tract, to Europe in summer. The complete change, the ocean trip, absence from all worry and care, were in my mind as elements most desirable to ameliorate a previous condition of disease, and thus to diminish on return home the probability of renewed attacks. Where the respiratory difficulty is pronounced and has resisted many methods of treatment, I consider a spa treatment of three to four weeks, advisable. If the digestive organs are notably impaired and the liver engorged and torpid, the mild alkaline springs of Homburg or Royan are useful, and even if abused, are not very detrimental to health like those of Carlsbad. In all rheumatic and gouty states combined with the conditions mentioned, these waters are also clearly indicated. On the other hand, where the respiratory tract is notably involved and where the other conditions seem secondary, I have no doubt that certain sulphur springs, especially those of Aix-les-Bains, are more beneficial. I believe this, first because I believe the local use of sulphur water atomized, or of the gases from it respired, is beneficial. Aside also, the advantages from baths, drinking the sulphur water, use of it locally in the form of sprays or vapors, I am of the opinion that the air itself of and around sulphur springs, is curative of most catarrhal disease of the air passages. In those instances where patients cannot go to Europe in summer, I advise them to go to sulphur springs in the United States, preferably Sharon or Richfield, or to some region of the Adirondacks more or less elevated. The seashore in general does not appeal to me; and yet, for such patients, I have known those who have improved notably anywhere from Long Island to the Maine coast. The doctor and patient must here work in unison and find out the special spot suited to the latter's needs. As we know, there are several places in the White Mountain region which are very healthful and bracing and are said to be especially well suited to hay fever sufferers.

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* Read before Section on General Medicine, New York Academy of Medicine, May 20, 1902.

In regard to other treatment in summer, what should we do with out asthmatics of bronchial type or those affected from an allied disorder? Should we continue to give them drugs or simply depend upon climate or spa treatment and régime, to do for them all that is desirable? Here again, there is no absolute rule. We should, as I believe, do pretty much as we should do under similar conditions in the winter, and when the patient is at home or in some one of the health resorts of the South. What this treatment is I have shown in a certain measure already. In addition, I might add that search should be intelligently made for any sinning agent or organ, which evidently requires attention. Among men especially, the nose and stomach must be properly considered. If there be marked nasal obstruction from polypus, deviated septum, hypertrophy, suitable local interference should be instituted. If dyspepsia and gastric complications are present, judicious treatment should be tried. Among women, both nose and stomach must also be investigated, and inasmuch as the uterus and ovaries are frequently at fault, perhaps some local treatment may there be required. What is far more likely is that the general nervous system needs toning up in every way, and whenever this indication is judiciously attended to, it will be found that sufferers from asthmatic seizures are not rarely much benefited.

It is often true that despite all our well-meant efforts, these patients still remain great sufferers and then they are too apt to become victims of soulless quacks who give them unwholesome drugs and drain their pockets. This is to be deplored and also because many proprietary remedies for bronchitic asthma act through the respiratory passages, and when for example they are inhaled, by reason of irritating products of combustion, do real harm to parts which are relatively healthy. To those parts far removed, deep seated, where the occluded, thickened inflamed bronchial tubes are found, and which are the real *fons et origo* of most signs and symptoms, here the inhalations rarely reach, and even were they appropriate and innocent, could only now and then be of any use. On the other hand, some of these inhaled substances are powerful narcotics and depressants and also local irritants. They deprive the healthy mucous membrane of its protecting epithelium; they depress and weaken many an organism where a dilated heart, emphysematous lungs and insufficient kidneys make their use wrong from every points of view and not seldom dangerously threatening to the patient's life.

Almost all cases of bronchitic asthma which have lasted some years, and where the acute attacks have been at all severe, are accompanied with some dilatation of the right heart cavities. The cardiac walls are thinned, have lost power, and may be degenerated. Hence it is that too high mountainous elevations are to be avoided, and we should not be surprised when told by patients themselves that such has been their experience. On the other hand, I do not believe the near vicinity of fresh-water lakes to be advantageous to these patients, or, as a rule, a very moist or fog-laden seashore atmosphere. Of course, all marshy, badly drained, clayey or even very scoggy ground should be strictly avoided—and these indications are to be particularly observed because I still believe that malaria causes asthma, where Anopheles cannot be the carrying agents. Much rest, simple food, good water, very gentle or moderate exercise are the indispensables of a sensible summer treatment for asthmatics. Spirituous drinks, tea, coffee, tobacco should be indulged in only exceptionally and when the symptoms appear to justify or call for their use.

We know how frequent digestive disturbances accompany bronchial asthma. The effect of a late or imprudent meal will frequently occasion an attack. Even in cases where the dyspnea is continuous, it is much aggravated by even a slight attack of dyspepsia. While the evidences of stomachal derangement are often manifest, this is not invariably true, and sometimes it is only after close investigation or the use of such medicinal means as soda bicarb, sub-gallate of bismuth, or the employment of lavage, that we can definitely determine its presence. Where the deranged stomach is causative of an attack of asthma or of an increase of chronic dyspnea, the beneficial results of a rational dietary and treatment directed to this organ, are shown very soon. In our summer treatment of asthma nothing is more important, therefore, than the effects produced upon the digestive organs. I have no doubt that climatic influences are powerfully felt here as elsewhere. But well prepared, simple and healthful food is also very essential and of course the drinking water should be of absolute purity and recognized potability. If these two qualities be not present it is far better to have the patient drink some favorably known bottled spring water. Despite the views of Haig and others, I believe only moderately in gout as a frequent, direct causative factor of bronchial asthma. I do not deny, however, that it may be present, and for this reason, in doubtful cases, would consider it advisable to limit the amount of red meat in the dietary and insist mildly on drinking water from a so-called lithia spring. While limiting the quantity of butcher's meat, I should also eliminate from the dietary potatoes and other starches in excess, as undoubtedly they are oftentimes productive of much flatulence and stomachal distension in the weak and feeble from any disease.

A fact which all general practitioners observe is that of the interdependence at times of eczema and other cutaneous disorders and asthma. If the cutaneous affection is improved, the asthma is occasionally worse; if the asthma improves, the eczema is more pronounced. The underlying factor in both instances is neurotic, the same eosinophile calls may now be found in the mucous secretion from the bronchial mucous membrane of the asthmatic or in the skin of patient suffering from prurigo. Arsenic, as Trousseau long ago pointed out, corroborated since by many other writers, will prove the most useful of all remedies in similar instances for dyspnea on the one hand or itching on the other.

In many cases of bronchial asthma the question arises between drug treatment and a surgical operation. The operation indicated may be and frequently is in the nose. It occasionally refers to a misplaced uterus, an inflamed ovary or an adherent prepuce as factors in the case. I stand to-day about where I did many years ago, always allowing for brilliant advances in the surgery of all special departments, which no one more cheerfully admits than I, viz., that while very rarely you may achieve a remarkable and enduring result in these cases by operative procedure, yet in the vast majority these desired results are not lasting. A time will come, sooner or later after the operation when we are forced to ask *cui bono.* And the answer is more than doubtful from a favorable standpoint. Do I believe in mere drug treatment, so-called? I certainly do not except in limited measure and with great regard for the large experience of many and for time-honored testimony. As I grow older and I believe more experienced, I am chary both of much medicine and much surgery. Ignorance and enthusiasm do more harm in the long run than the contrary defects, perhaps, of scepticism and conservatism—which ever show a tendency to refrain. As I believe, a surgical operation is the opprobrium of surgery in the widest sense, just as a dose of medicine is the opprobrium of the healing art—the noblest and most beneficent of all the arts.

The luminous object to keep constantly in view, I believe, is what may ultimately proceed from a true prophylaxis of disease by the daily use of all hygienic methods. Already many of us recognize and teach this way of doing. Unfortunately, people are not as yet thoroughly educated to see the great wisdom of it and the inestimable results from a health point of view which would ultimately come to them by adopting it as their rule of guidance. To show how true it is as regards bronchial asthma I need only state what is true that the only cases of this kind which thoroughly and permanently recover in my experience, are those in young persons where secondary complications are as yet undeveloped, and where everything has tended to produce the best growth of an originally defective physical condition. A few of these cases are indeed the only ones where I would now be willing to recognize asthma as being a purely nervous disorder.

I might continue to read at length on this interesting topic. I have made no such attempt. I have merely endeavored to point out a few leading thoughts proceeding directly from my own study and experience, which may serve, I hope, to start an interesting and very profitable discussion at this season, when we all wish to know what is best to do with cases of bronchial asthma and allied disorders during the coming summer.

SCHOOL LIFE AND INSANITY.

BY J. S. LANKFORD, M. D.,
OF SAN ANTONIO, TEXAS.

THAT insanity is increasing to an alarming extent is beyond all question. Formerly a few dark dungeons were sufficient to house the madmen. Now, however, notwithstanding our better enlightened views, and that the broad and humane tendencies of mankind have led to the building of an almost infinite number of modern institutions until the capacity is enormous, the ever-increasing cry is more room for the insane. Private sanatoriums are springing up all over the country and are prospering on account of good patronage, and many patients are cared for in their homes; and yet we suffer the humiliation and disgrace of detaining in criminal jails many innocent unfortunates because we have no other place for them. As a nation and as individuals we are philanthropic and quick to answer the call of distress from every source, but we are confronted with the almost impossible task of trying to keep pace with the growing necessity for homes for this most unfortunate class of all human creatures. If anyone doubts these statements let him inquire of the authorities of any of the states the number of insane cared for now as compared with any given period in the past. It must be admitted that changed conditions in environment and in methods of living are largely responsible for this fearful increase in insanity. There is no sociological question of the present day of equal importance, and students of racial and national evolution and degeneration cannot afford to pass lightly by such an important state of things.

It is my purpose in this paper to discuss one of the important factors in the causation of this marvellous increase in mental trouble, viz., the high pressure in the school life of our children. The American is a composite character who seems to have been born with an inordinate desire to excel all other human creatures in everything he undertakes, and to have gathered up all of the energy of the world, but not all of its wisdom. He must erect the tallest business blocks and build the finest palatial homes; he must make the best railroad time and drive the fastest horses; he must do more work and make and spend more money than anyone else; he must be everything, know everything and stand first in it all. The inevitable result of this desperate effort to excel in the wild rush for position and money, prestige and power is an all-consuming rapid pace of living that knows no rest and that must lead to destruction.

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* Read before Texas State Medical Association, May 7, 1902.

It is not surprising that this all-pervading tendency to attempt too much has invaded our schools and has become so pronounced that we find our children burdened with a course of instruction far beyond the limits of reason—a course, in fact, which is an outrage upon the brain and nervous system of the growing child. The good old days of simple instruction, good moral lessons, outdoor sport and natural bodies have passed away. The pupils positively look too old to enjoy play. Years ago the great problems of science were hard lessons for mature minds, but now our children are dipping deep into scientific matters before they are old enough to be certain of anything but a mother's love; and they are daily oppressed with profound problems that would stagger the average business man. They are required to answer questions in anatomy and physiology that are too hard for medical men. They are experts in botany and so versed do they become in geology that they can explain the formation and development of the earth from the earliest ethereal state to the discovery of Beaumont oil. Geography is followed for seven long years, rehearsing climate, soil, products, commerce and peoples of all the nations of the earth, and for what? History of all nations must be remembered perfectly with all the dates from Adam down to Roosevelt; and the child must be able to theorize and discuss the rise and downfall of every government that has ever existed. Of course the pupils have an abundance of spelling, reading, writing, arithmetic and other legitimate studies; and they have grammar and language books with diagramming, paraphrasing and dramatizing enough to produce paralytic dementia in an adult. Music and art and all sorts of accomplishments come before the child has reached the age of accountability. If the little fellow is still able to travel and hasn't quite as many books as he can carry home to study at night and to haunt him in his dreams, he has the privilege of adding German, Spanish and French to his Latin. Philosophy and psychology are essential, and hypnotism, osteopathy and Christian Science may be included later. Millions of cold book facts to remember while the delicate structures of the brain are struggling for development, but no time for rest or for original thought, and no attention paid to the growth and care of the body.

This constant and terrific strain upon the brain of the growing child without any attention to the development of the body, and with but little care for the general health, cannot be otherwise than most disastrous. Many of the pupils if examined will be found excitable, emotional, wakeful, discontented and suffering often with headaches or nervous dyspepsia, the girls showing a decided tendency to hysteria, with here and there spots of anesthesia and hyperesthesia discoverable. The girls are, in fact, the greatest sufferers, for they are conscientious and ambitious and struggle desperately to make a creditable standing, while the boys play more, shirk their duties and quit school early. Girls suffer great injury, particularly at the beginning of menstruation. What particular morbid process is going on in the central and peripheral nerve-cells and other structures we perhaps do not know, but that injury is done we have abundant evidence. In my own city three ambitious girls and one boy were under the usual strain for years. One of the young ladies is now in a private institution in the north seeking relief from insanity. The second is in the care of a keeper at home, hopelessly lost; the third is in the asylum for life. The young man was afflicted with acute mania for a year and is now apparently well, but his future is uncertain. One of the young ladies had just "finished" but was practising on the piano ten hours a day when she broke down. These are a few examples of the direct and immediate results of the strain upon the mind.

The indirect and remote effects are more appalling still, because a much greater number are concerned. A large number of children come out of school with a morbid condition of the brain, the whole nervous system unbalanced, digestion impaired, the will power weakened and afflicted with an incurable "hurry habit" which has been engendered by school life. Being thus hampered and not being well equipped for any particular occupation, the student starts off in life at a great disadvantage. His capital of nerve energy has not been conserved and soon becomes exhausted. He is deficient in force and power, uncertain in business, and a prey to divers temptations, vicious habits and diseases. Then, when business cares oppress or disappointment in love affairs comes, or when domestic unhappiness hangs heavily upon his life, he is easily on the borderland of insanity and often passes over. If it is true that the mind is co-existent with the nervous system, even to its terminal filaments and throughout the great sympathetic, then it is proper in the scope of this article at least to mention the direful results of this constant high pressure of school life upon the other organs of the body, which condition we might call, for want of a better name, insanity of the nervous system. So intimate is the nerve connection and so important the influence that scarcely a sound organ is found. Unborn generations must not be forgotten in considering remote effects. All our weaknesses, springing from whatever source, must be carried down to posterity, and the next generation of children will have a sad heritage to burden them in their effort to build successfully unless we correct the evils in our present methods of education.

Gentlemen, there is not the slightest question in my mind that the burden laid upon our children is far beyond the limits of safety, that this burden is a potent factor in the causation of insanity, and that we must lighten the weight, or else in the natural course of events, effect following cause, our children will suffer greatly and posterity will reap degeneration from the seeds we are sowing. What can we do to save our children from this abject slavery, to promote their proper mental development, and to protect posterity? (1) Reduce the course of study. (2) Develop the body co-equally with the mind. (3) Institute a better classification of pupils and study individual tendencies and requirements. (4) Use object lessons rather than books. (5) Introduce industrial training as rapidly as possible. It is absolutely necessary to have abbreviated textbooks or to drop a number of books from the course and stick closer to the essentials. The textbook writer is a close student and a selfish specialist, and the scope of his branch widens in importance in his mind till he writes a book or a series of books which are the study of a lifetime; and yet our ordinary school child is expected to master 20 such in the years of rapid growth.

A large part of the general information crowded into school life is forgotten before the child is grown and would come later in life unconsciously and without effort, and it should be omitted from the course. Better physical development is of paramount importance if we would have a well balanced life. In times gone by our children lived more in the country districts under the best possible conditions for natural growth, and they grew up strong and healthy in body and mind. But now we are given more to city life with its follies and excitement and morbid development of the brain and nervous system at the expense of the body. The body needs better care now than at any time in the history of man and should be guarded and developed as carefully as the mind. In the near future the school must be equipped with a gymnasium and all pupils should be required to take the exercises, which, of course, will be wisely adjusted to each individual under medical supervision. Better classification is urgently necessary. Pupils should be classified according to disposition and aptitude, studied individually and developed in accordance with nature's gifts.

It is an agreeable change to pass from our careworn classes to the happy groups of public school children in Washington city and watch their interesting faces and the easy manner as they go from place to place all over the city and in the country studying things as they really are, with the objects before them. They look healthy and happy and are being taught methods of observation which will benefit them permanently in the affairs of life and they are largely free from the distressing burdens of those we have left behind.

Industrial training perhaps offers the best relief from the present system of oppression. We need industrial departments that will train the hands for useful occupation along the lines marked out by nature so that the pupil may be ready for immediate usefulness when school is finished. It would not only relieve the oppressive burden of many useless books and thus lighten the strain, but the pupil would have congenial employment in his student days and when grown would be well equipped for a successful and contented life, and therefore less liable to mental alienation. I would not be understood as opposing higher education or the broadest culture. Those who are capable, industrious and healthy will attain eminence under any and all circumstances, and many will stand very heavy work. I am pleading for the great majority who are struggling under impossible burdens, and urging that our schools shall be adjusted to them, and so arranged that body, mind and morals shall be symmetrically developed, without such a terrific strain, and that they may be given training which will fit them for usefulness and make them competent, independent and contented, with minds intact.

Every human creature is responsible to his fellow man in the exact measure of his influence and opportunity, but the doctor has a double responsibility in matters of education, for he follows the child from infancy throughout the period of development and he is expected to advise wisely in all things. The physician's greatest responsibility, as well as opportunity, is in preventing disease, and there has never been in human history a danger that called louder for his beneficent aid than is found in the school life of our children today.

In conclusion, gentlemen of the association, I appeal to you in the name of over-burdened pupils and careworn teachers to investigate the condition of our schools, and to give this subject your best thought, and to use your influence energetically for reforms that will correct the evils of our educational methods. My intention has been not so much to suggest remedies, as to call attention to the conditions and to set you to thinking. When we have attained a system of education which permits and promotes the natural evolution of the whole human creature without undue strain, and which utilizes the best of nature's gifts, then contentment in life will follow and insanity in many forms will materially decrease.

Then and not till then can it be said that the physician has met this great responsibility wisely and that he has done his whole duty to the millions of suffering children who stand about him trembling under their grievous burdens, mutely appealing to him for relief.

MEDICAL PROGRESS.

SURGERY.

A New Use for the Appendix.—A very ingenious idea is advanced for the use of that supposedly superfluous human appendix. R. F. WEIR (Med. Rec., August 9, 1902) shows the advisability of making an artificial anus at the cecum, or in the upper portion of the colon, in those persistent and intractable cases of colitis which frequently prove fatal under medical treatment. He had done one operation of this kind in which he made a Kader-Gibson fistula, by placing a medium-sized catheter in a small opening in the cecum and applying two or three rows of purse-string sutures so as to invert the adjacent peritoneal coat. When he was about to do another case the appendix presented itself so easily that he at once made use of it in his operation. He served the tip of the appendix into the wound and then, opening the end, ran a small catheter through its lumen into the cecum. If one were sure that it was patent it would be unnecessary to open the appendix till adhesions had formed. Irrigations were subsequently carried on through this organ, and the case made a good recovery. The danger of shock and peritonitis is very much lessened by this means, and the subsequent treatment in closing or removing the appendix is comparatively simple and entails very little danger.

Pneumococcus Peritonitis.—Two cases of circumscribed intra-abdominal abscess have been observed by F. de Quervain (Correspbl. f. Schweiz. Arzt., August 1, 1902) where pneumococci were found as cause. Owing to their position in the right iliac region they simulated perityphlitic abscesses, and in one, where there was occasion to remove the appendix later, pneumococci were also found in the lumen, though the walls were but slightly diseased. Both patients were girls, a prominent symptom of the disease was herpes labialis, and the germs proved to be highly virulent for animals. In these and other cases described the onset was very stormy, and was followed by a more quiescent stage with encapsulation and eventually the formation of a fistula in the region of the umbilicus, through which the pus discharges. Some die during the acute stage, but the majority run so chronic a course that tuberculosis is suspected. In not all is the location the right flank and the origin so evidently appendicular, but it is probable that in most the germs are derived from the intestines, which they reach in a still virulent condition, owing to lack of acid in the stomach. Objectively there never is any distinct resistance or edema of the subserous tissues. It is a strange and unexplained fact that girls are more often affected than boys. In conclusion, the following etiological subdivision is suggested: (1) Secondary cases, caused by infection of the peritoneum from a primary focus, which may be the upper respiratory or alimentary tract, the lungs and pleura, the gastro-intestinal tract, by way of chronic ulcers after trauma or pneumococci enteritis, or through the appendix, and lastly the female genital tract. 2. Primary cases, the treatment being the same as for other intra-abdominal abscesses.

Cystoscopic Experiences.—It has been the good fortune of B. Goldberg (Münch. med. Woch., July 15, 1902) to examine a large number of cases with the cystoscope, and he gives his experience in an interesting article. For prostatic hypertrophy the use of the instrument as a rule is unnecessary, as the symptoms and the rectal palpation leave little doubt as to the nature of the condition, but when it is used there may be some difficulty owing to the lengthening of the urethra, the size of the prostate and the tendency to hemorrhage, and on this account the instrument has been modified in various ways. It is well to cystoscope when determining which operation would be best suited for a case, especially when contemplating a Bottini, as the relations can thus be best studied. For cystitis pure and simple the appearance of pus in the urine is a much more delicate test, but the pus may descend from the kidneys or ascend from the prostate, so that a cystoscopy may be desirable to determine its origin. The same may be said of tuberculous cystitis, but it is not good to cystoscope here if a focus is present in the urethra or prostate, for there is danger of secondarily infecting the bladder. It must be remembered that in a great many cases the find of tubercle bacilli in the urine is positive and sufficient for a diagnosis. Turning now to vesical stones, the instrument will determine the number, size, position and complication of stones, but one cannot ascertain their friability, for which purpose the lithotriptor is essential, and with this alone, as a rule, all the necessary examinations can be made. Of much more value are examinations for vesical tumors, but a bad cystitis or hemorrhages may make them impossible, and if a tumor develops in the muscularis it is only when a distinct prominence is formed that it can be seen.

Malignant Stricture of the Esophagus.—The diagnosis and treatment of malignant stricture of the esophagus are very important matters because this viscus traverses the thorax and enters the abdomen in close proximity to important organs. Naturally the symptoms vary according as the growth is in the upper, the middle, or the lower third. C. J. Symonds (Lancet, August 9, 1902) summarizes the broad principles of diagnosis by stating: (1) Among early symptoms one may have so-called dyspepsia, nausea and repulsion for food; pain alone when the central district is affected; (2) the passage of a bougie is the only way to clear up the case, and its gentle, precise employment need not be feared; (3) extra-esophageal disease rarely gives rise to serious dysphagia; (4) spasmodic obstruction, apart from the hysterical form, has always, when decided, an organic cause, and this would be better called intermittent dysphagia; (5) with regard to the three special districts it may be said (a) that all organic obstruction in the upper third is malignant and has a special tendency to cicatrize, (b) that in the central half of the gullet a sarcoma or a myoma, both rare diseases, may cause fatal obstruction—and here also a pouch may give rise to difficulty in diagnosis, but can generally be excluded—and (c) that in the lower end alone does simple stenosis occur—and here there may be difficulty in distinguishing it from cancer of the stomach, causing great reduction of the cavity (leather-bottle stomach); (6) finally, in estimating the extent of the disease, the special value of the steel bulb is noted and also the use of the coudé bougie in obstruction at the lower end. The broad principles of treatment he discusses in full. Speaking generally, he remarks, it may be said that one can relieve by mechanical means only, and that two methods are available, one to overcome obstruction by inserting a tube of some kind, and the second to open the stomach below the obstruction, *i.e.*, to perform gastrostomy. He would put the general question of treatment in the following way as applying to all cases: (1) While the patient can swallow fluids and semisolids, and while a bougie can be passed and plenty of nourishment taken, he may be left alone as long as (a) he can swallow well, or (b) a small bougie, No. 12 catheter gauge, can be passed; (2) if the dysphagia increases, even though a bougie can be passed, then a tube must be inserted or gastrostomy must be performed, these conditions being seen in the soft fungating forms; (3) if a bougie cannot be passed, or goes with difficulty, then the same course must be followed, as complete closure may occur at any time; (4) if both conditions arise, *i.e.*, if the patient cannot swallow and a bougie cannot be passed, then immediate mechanical treatment is required. Probably most authors have summarized their treatment in some such fashion. He has not advocated the passage of bougies with a view of dilating the stricture. It is injurious in that it irritates and leads to increase of obstruction; it may split a hard stricture and set up rigor and fever from absorption. In his own practice he has abandoned this method in all malignant cases. The object of the small bougie, to which he has referred, is simply to secure the route so that at any time a rather small tube can be passed for feeding purposes, or the time fixed for gastrostomy. Any such treatment beyond this has, in his experience, proved injurious. As applying to all cases, he refers to the advantage of attempting the passage of a tube after a night's rest and a dose of opium.

Intestinal Suture.—The question of putting sutures through and through the entire intestinal wall, in order to gain firm support, is discussed in the following terms by C. N. DOWD (Ann. of Surg., July, 1902) in a paper concerning gangrenous intussusception. The method of intestinal suture which the physician prefers he describes in the following terms: The first stitch is taken at the mesenteric border; it passes through the entire intestinal wall and through both layers of the peritoneum as they pass from the intestinal wall to form the mesentery. When it is tied the peritoneal surfaces are in close apposition and have the support of the entire thickness of the intestinal wall. A stitch is first taken on each side of this to strengthen the union, and then a row of stitches about the entire circumference of the intestine, entering the mucous membrane one-eighth or three-sixteenths inch from the cut margin and emerging from the serous coat, then entering the serous coat of the other intestinal end at a corresponding place, and emerging from the mucous membrane. These stitches pass over the inverted edge of the intestine and are tied there. A knot is made after every third insertion of the needle. These knots are formed by tying the free end of the thread, which is left protruding from the stitch-hole, with the double thread which emerges from the other side of this hole. If one of the threads leading from this knot is left uncut the stitching may be continued with the same needle and thread. There is no difficulty in inserting these stitches without special appliances; mouse-tooth forceps, sewing-silk, and needle are all the appliances needed. While the stitches are being placed the edges of the intestine may be held taut with the mouse-tooth forceps or a silk thread. After insertion of the last suture the stitches need in no place be more than one-eighth inch apart, and the peritoneal surfaces are in firm apposition throughout the entire circumference of the intestine. This row of stitches is then reenforced by an outer row of Cushing sutures, which include the serous, muscular, and submucous layers, and which are knotted after every third or fourth insertion of the needle.

Hemorrhage into the Omental Bursa.—A peculiar case of hemorrhage into the omental bursa, feigning symptoms of acute intestinal obstruction, has been observed by K. GRASSMAN (Münch med. Woch., August 12, 1902). The patient, a perfectly healthy man, was seized suddenly with collapse after a meal, and the bowels could not be made to move after a number of enemata. Laporatomy was performed, with cocaine anesthesia, and the entire peritoneum was found filled with blood, which seemed to come from the lesser omental pouch. On autopsy, it was discovered that an adenomatous growth in the spegelian lobe had ruptured the liver and thus given rise to the bleeding. The case illustrates well the difficulty, and even the impossibility sometimes, of making a correct diagnosis in abdominal conditions.

Efficiency of Collargol.—To determine the efficiency of soluble silver, R. TROMMSDORFF (Münch. med. Woch., August 5, 1902) injected the drug into the veins of animals with artificially produced septicemia, in doses corresponding to 5-20 c.c. of a 1 per cent. solution in man. All animals treated with collargol died in about the same time as control animals. Even when the dose was increased tenfold only negative results could be recorded. In other experiments Bocelli's method, the intravenous injection of sublimate, was tried with no better success. It would be improper, however, to discontinue the use of collargol in the treatment of sepsis in man, since, on the whole, the clinical reports are very favorable.

Cancer Statistics.—The statistics of this disease have usually been based on purely clinical diagnoses, and the value of observations made at autopsy are commented on by W. RIECHELMANN (Berlin. klin. Woch., August 4, 1902). In a series of 7,790 autopsies, performed during a period of six years at a Berlin hospital, he found 711 cases with a pathological diagnosis of carcinoma. In 156 cases—almost 22 per cent.—the diagnosis could not be or was not made before death. Considering the susceptibility of the sexes, it seems that in general both are about equally affected. If, however, the varieties of tumor peculiar to each sex are eliminated, the proportions change, the male being the more often afflicted. The male sex is more susceptible to carcinoma of the esophagus, stomach, larynx, lungs and face, the female to carcinoma of the genitals, gall-bladder and mammæ. The author also found a notably large number of cases in which the bronchi, the lungs or the pancreas were involved. He believes that the increase in the number of cancer cases may be accounted for by the fact that a greater number of persons reach the susceptible age, by the improved methods of diagnosis, and by the appearance in statistics of anatomical instead of clinical diagnoses.

OBSTETRICS AND GYNECOLOGY.

Carcinoma in Women.—The technic for operation for cancer in women is so familiar to every one at the present time that the most important single feature of this disease is early diagnosis. W. J. SINCLAIR (Lancet, August 9, 1902) summarizes the reasons why early diagnoses are less frequently made than they should be under the following four heads. Thorough familiarity with these cautions will probably aid in indicating cancer at a time when modern surgery will have the best opportunity of cure. (1) The patients are not so well trained and disciplined as German and other women in Continental Europe. They naturally hesitate when they think of going to a medical man to tell of their symptoms, and they neglect the most ominous symptoms with a light heart because they suffer no pain. The consequence is that as a rule cancer patients consult the medical practitioner when it is clearly too late to do any operation justifying the hope of cure or even prolonged immunity, and in many cases advice is sought for the first time only when it is almost too late to palliate. (2) This is clearly the most important of the many diseases regarding which the interests of the general practitioner in the subject and his influence with his patients are the chief ground for hope of ameliorations. To him the patient first appeals, and consequently on him depends whether or not steps shall be taken promptly to bring the best resources of medical science to bear on individual cases. The criticism may be ventured, and is suggested by common experience, that all are not sufficiently insistent on physical examination, even when there is *prima facie* evidence that the cause of the symptoms is malignant disease. It is a painful fact and food for humble reflection that one still sees presenting themselves at the hospitals poor women who have been under medical treatment for a considerable time without an examination being suggested to them, even though the first symptoms they mention, also their ages and the appearance they present should at once suggest the presence of cancer. (3) Among the causes leading to late diagnosis of malignant disease of the uterus—partly due to tardy presentation of themselves by patients, and partly to the postponement of examination—is the prevalent superstition with regard to a "climacteric hemorrhage." There can be no hesitation in saying with entire conviction that "climacteric hemorrhage" is, like the collective term "cancer," one of the inherited burdens which physicians drag along with them to their hindrance and grievous detriment. Apart from pathological conditions usually diagnosable there is no such phenomenon in nature. (4) Another popular delusion which stands in the way of early diagnosis of cancer of the uterus is the belief that pain is an invariable symptom of cancer. When the sufferer from cancer begins to complain of pain, a gynecologist knows that the disease is too far advanced for radical treatment. The question naturally arises, How is this universal ignorance to be dissipated? If patients only knew what symptoms were suspicious, the fear of death would overcome the natural shrinking from examination and the medical adviser would be taken early into confidence. The nature of the subject precludes the popularizing of knowledge by ordinary methods, but a great deal more might be done by the means now available. Dr. Lewers makes the helpful suggestion in the Practitioner for June that a cancer research commission might be the agency of diffusing knowledge of the subject through nurses, district visitors, sanitary associations and others who come into intimate relations with the more ignorant and poorer classes of the community.

Treatment of Extra-Uterine Pregnancy.—There is hardly much question at the present time that the proper management of most cases of ectopic gestation rests in operation. The abdominal incision is the one most practised, but even with all modern methods there is danger of shock, infection and hernia. For this reason, A. Rieck (Münch. med. Woch., August 5, 1902) highly recommends the vaginal route. The incision is made between uterus and bladder, and the uterus with its adnexa brought out and a typical salpingotomy performed. For those accustomed to operate in the vagina the procedure is not difficult, and there are virtually no dangers connected with it. The patients pass wind and feel well by the second day, and are allowed to get up after two or three weeks and to resume their work in two weeks more. After this time the vaginal scar is so insignificant as scarcely to be noticed.

Leucocyte Count in Pregnancy.—An extended series of observations to determine any deviation from the normal conditions in pregnancy, have been made by W. Zangemeister and M. Wagner (Deut. med Woch., July 31, 1902). In the first place they found that the leucocytes varied within the same limits in pregnant as in other healthy women. Secondly, during the course of a labor they found with few exceptions an increase in the number of leucocytes, seeming more marked in difficult labors, when the pelvis was small or instrumental interference was due to other causes. The highest point in the count was always present just before complete delivery. During a normal puerperium the number of white cells begins to decrease within a few hours after birth and continues steadily until the normal is reached. After versions with manual extraction or other operations the count usually remains high for a longer time. In pathological states, where slight rises of temperature and putrid lochia were present, no marked changes were observed. The latter could only be demonstrated in undoubted septic cases. The authors do not think that the leucocyte count is of any decided diagnostic value in puerperal fever. Their observations show, however, that even physiological conditions such as childbirth may be accompanied by an increase in the number of white cells such as we are apt to find in severe infectious processes.

Myxedema, Parturition and Eclampsia.—A case presenting the combination of these three conditions came under the observation of A. Herrgott (Ann. de Gyn. et d'Obstet., July 1, 1902). A myxedematous girl, eighteen years of age, having become pregnant, which is the exception, was taken in the course of her acouchement with eclamptic seizures, although her urine contained no albumin. In view of the nervous manifestations following thyroidectomy (operative tetany), it seems that in this case the convulsive attacks which have so much in common with operative tetany were due to the insufficiency of the parathyroids, which are underdeveloped or altered in myxedema. In a word, if the eclampsias so far known are due to renal or hepatic insufficiency, may one not speak of an additional form resulting from insufficiency of the thyroid body, particularly of the parathyroids?

PATHOLOGY.

Influence of Spleen on Hemolytic Properties of Blood-Serum.—The fact that hyperplasia of the spleen occurs in infectious diseases and that the spleen seems to amass and consequently arrest the further distribution of micro-organisms, have led I. Levin (Jour. of Med. Res., June, 1902) to determine whether the organ possesses any influence on the hemolytic properties of blood-serum. The following experiments were performed: Six rabbits were immunized against bullock's blood; then the spleen was extirpated, and a week later the serum tested for hemolytic power. From four rabbits the spleen was extirpated and immediately afterwards immunization began, while with six a few weeks were allowed to elapse. The conclusions are that the spleen is undoubtedly not indispensable for the acquired or the natural hemolytic properties of the blood-serum. Nor, so far as these experiments go to show, does it appear to elaborate the substances upon which either the normal or artificial hemolytic properties of the blood-serum depend. The last question, however, needs further research with a different technic.

Uterus in the Fetus.—Thirteen fetuses, whose age varied from seven to nine months, were examined by C. A. Hamann (Jour. of Med. Res., June, 1902), and more or less distinct spindle-shaped dilatations were found in all but two. There was no difference as to sexes as far as could be learned. Where the uterus crossed the iliac vessels there was a slight narrowing and the enlargement extended from 1½ to 3 cm. In three of the fetuses the ureter had serpentine curves, and in none were there any evidences of atresia in the urinary tract. It seems possible that the tortuosities might, in some cases, favor the development of hydronephrosis.

Artificial Growth of Epithelium.—By transplanting epithelium into agar or blood-serum in the living animal, changes could be observed by L. Loeb (Jour. of Med. Res., June, 1902) resembling those taking place in carcinomatous epithelium. Of the structural peculiarities, some were caused by degenerative processes in the epithelial cells, others by inclusion of foreign particles in the cells, still others by foreign bodies determining the arrangement of the epithelial cells. These experiments may aid in determining what changes in carcinoma are produced by degeneration of the cells and what changes are produced by the presence of foreign bodies.

The inclusion of blood-serum in epithelial cells can be observed as early as five days after operation, and can still be seen after 12 days. Pigmented epithelial cells transplanted into blood-serum show in the first 12 days the same changes in pigmentation which were found to take place in epithelium when it is regenerated in the usual way upon connective tissue. The more prononuced degeneratives changes in epithelium transplanted into blood-serum began to take place about the eighth day after transplantation. All these facts prove that the changes found in carcinoma are not caused by any specific influence, but are determined by the character of the epithelial cells under the influence of chemically indifferent foreign substances.

Contribution to the Parasitic Tumor Theory.—A tumor, myxosarcomatous in character, was accidentally discovered in the lungs of a horse by L. FROTHINGHAM (Jour. of Med. Res., June, 1902) and from it a torula was isolated. Inoculations of rabbits and guinea-pigs with material from the original lesion and with pure cultures of the torula obtained from it reproduced similar lesions in these animals, and also, if time permitted, metastases. The lesions seemed to be a purely inflammatory reaction of the tissues. The epithelial cells were found necrosed or uninjured but there never was any proliferation.

Transplantation of Tumors.—A set of experiments to determine whether tumors could be successfully transplanted, conducted by L. LOEB (Jour. of Med. Res., June, 1902) were on the whole successful, especially in a series of transplantations of the sarcomatous part of a mixed adenocarcino-sarcoma of the thyroid in a rat, provided the same species of animal was used. Owing to structural peculiarities, the new growths could not be regarded as granulomata, but as true sarcomata. The sarcomata found in different rats showed some differences, based on differences in the cells and on differences in the formation of fibers and in the degenerative processes which take place. These differences are present though these sarcomata originated in the connective tissue of the same part of the body. They were reproduced throughout both series of transplantations which were carried through about 48 generations respectively. Certain factors in the constitution of the tumors were constant and others variable, and the possibility must be admitted that the relation of sarcoma cells to blood-vessels might be dependent on nutritive and functional and not alone on genetic relations. The growing sarcomata had the power to penetrate into the central necrotic part of the transplanted piece, which became liquefied, probably under the influence of proteolytic ferments. In the second series all attempts to produce tumors by transplantation of pieces or by injection of tumor fluids in white mice, guinea-pigs or rabbits have been without result; and in both series pieces of tumor which was infected at the time of operation frequently gave rise to the growth of sarcomata, the cells seeming to have considerable power of resistance to bacterial toxins. Fluid obtained by mincing the tumor with addition of normal salt solution did not produce sarcomata. The question as to individual immunity was difficult to prove, owing to several complicated factors. Local and contact metastases were also formed in the second series of transplantation, and secondary nodules were frequently found if ulceration of some part of the tumor had taken place. The growth of the original tumor was generally slower than the growth usually observed in the transplanted pieces. A series of experiments were undertaken to determine how long pieces cut out from tumors could be kept on ice and yet develop sarcomata after transplantation, and it was found that the tumor-producing agency was not destroyed or even markedly attenuated after five days. Experiments on the influence of Roentgen rays were begun, and after seven exposures of 10 minutes each the sarcoma cells continued to multiply by mitosis and developed readily after transplantation, though there was some degenerative softening in the center. Similar experiments are recorded in an article by M. Herzog, who made over 50 successful transplantations extending over eight tumor generations, and his Roentgen-ray exposures in some cases showed a softening and decrease in size of the tumors. Inoculation done with the intention of producing a tumor from absolutely cell-free substances derived from sarcomata, all proved unsuccessful.

The Pathogenesis of Exophthalmic Goiter.—It had been found by certain investigators, as the result of experiments on rabbits, that wounding the restiform bodies produces many of the symptoms of Basedow's disease. E. TEDESCHE (Rev. neurol., July 30, 1902) performed the same experiments on dogs, and found, in addition to the symptoms above revealed, polyuria, glycosuria, trembling, sometimes voracity of appetite, and sometimes complete anorexia. He draws the following conclusions: In animals a lesion of restiform bodies, especially of their anterior portion, produces the Basedowean syndrome. In animals thus treated, and in which the symptoms have diminished or disappeared, one can reawaken them in whole or in part by hyperthyroidization. A lesion of the restiform bodies in thyroidectomized animals does not produce the symptoms of Basedow's disease. On the other hand, in animals in which this disease has been produced by a lesion of the restiform bodies, thyroidectomy diminishes or causes the disappearance of the greater part or all of the symptoms.

The Appearance of Glycogen under Pathological Conditions.—Physiologists have taught that glycogen is one of the normal constituents of white blood-cells. But according to F. KATSURADA (Beitr. z. path. Anat., vol. 32, No. 2), leucocytes freshly emigrated from the blood-vessels do not contain glycogen in appreciably measurable quantities. After the lapse of a certain period of time such emigrated leucocytes begin to show a distinct glycogenic reaction. This reaction also appears when leucocytes contained within the vessels have undergone degenerative changes.

Pathology of Hyper- and Anacidity.—Since opportunities to do autopsies in cases of pure hyper- or anacidity of the stomach are obviously very rare, it is not known if any changes exist in the mucous membrane of the stomach. M. CLOETTA (Münch. med. Woch., August 12, 1902) states that attempts have been made to scrape off pieces of the mucous membrane for examination with a specially constructed sound, and that a proliferation of glands has thus been found where too much hydrochloric acid was secreted. Another method, however, has been resorted to by the author. It is well known that growing dogs when kept exclusively on milk show no acid in the stomach, while if fed on milk the amount of this will be above normal. Accordingly several dogs were kept on the two diets for almost a year, and then their stomachs examined almost immediately after they were killed. The results were a great disappointment, since no anatomical changes could be found. It is probable that both conditions must be regarded as neuroses.

BACTERIOLOGY.

Varieties of Diphtheria Bacillus.—There are two opposite views held with regard to the diphtheria bacillus and the many varieties resembling it; one, that the diphtheria-like bacilli are simply transitory variations and that their form, cultural characteristics and pathogenicity all vary within a wide limit, so that one form may assume readily the properties of another; the other, that certain forms possess such stable properties that one is not converted into another, and each must be regarded as a distinct species. In an extended paper on this intricate subject, A. W. WILLIAMS (Jour. of Med. Res., June, 1902) attempts to show that not only are there definite and distinct species, but that each species has distinct subspecies and varieties with characteristics which continue to persist under different conditions. Thus varieties as well as species remain separate, and when grown under similar conditions the species show no tendency to become converted the one into the other, while the varieties gradually change, approaching a common norm. Since in a series of 10 cases of clinically typical diphtheria only one variety of the specifically virulent diphtheria bacillus was obtained from the throat of each case throughout the course of the disease; since from different parts of the same patient only one variety was isolated, and since pseudovarieties were found no more frequently at the end than at the beginning of the disease, it is safe to infer that specifically virulent bacilli do not readily, if ever, change into any form of non-virulent diphtheria bacilli in throats or noses of people during an attack of diphtheria. In a second group a number of healthy throats were examined and many distinct varieties of diphtheria-like bacilli were found, all of which, however, in serial pure culture, retained their characteristics. From a third group the inference was drawn that not only does a variety of the bacillus retain its characteristics for some time in the same throat, but that it may be transferred to other throats without losing its individuality. Finally a number of cultures were examined which had been kept in the laboratory for years. These were freshly inoculated every few days, and but few changes were found in the general shape and properties of the bacilli, as compared with the original observation.

Agglutinating Properties of Plague-Serum.—A contribution to the discussion of this subject is made by A. AUJESKY and J. WENHARDT (Berlin. klin. Woch., August 11, 1902). After an exhaustive series of experiments they found that the blood-serum of a healthy horse is capable of agglutinating the plague bacillus, but only in a dilution less than one in 10. The plague-serum itself, when concentrated (less than one in five), causes agglutination not only of the plague bacillus but also of other bacteria. The blood of normal persons does not produce agglutination, and the same result is seen in those afflicted with tuberculosis. After immunization with plague-serum, however, human blood often acquires this property. The urine also develops a like phenomenon. The serum of guinea-pigs does not cause agglutination even after the inoculation of Haffkine's virus. The authors have found that this can be employed for agglutination tests, but the reaction is not nearly so marked as if produced by the living bacillus.

GENITO-URINARY AND SKINS DISEASES.

Dermatitis Due to Colon Bacillus.—This organism is found in external wounds, but is usually present in association with the streptococcus pyogenes. H. G. ANTHONY (Jour. of Cut. and G.-U. Dis., August, 1902) reports a case of dermatitis on the hand, which from other lesions which the patient presented was diagnosed as tuberculous. No tubercle bacilli were ever found, and the only organism isolated from the pus was the bacillus coli communis in large numbers. The author is not ready to exclude the possibility of a primary streptococcus infection, nor to affirm on the authority of a single case that the colon bacillus is alone capable of producing such a lesion.

Lupus Erythematodes—The etiology of this condition has thus far never been definitely determined. Infection by the tubercle bacillus has usually been considered by many as the cause, but the bacillus has never been definitely demonstrated, nor have methods of treatment which influenced ordinary lupus been of any avail. E. HOLLÄNDER (Berlin. klin. Woch., July 28, 1902) has found the following treatment very effective, and submits certain considerations as to the etiology of the disease. He administers the muriate or sulphate of quinine in 7½ gr. doses t.i.d., and about 10 minutes later gives the affected areas several coats of tincture of iodine. This is continued for five or six days, and after a like interval of rest is again administered. If the reaction is slight, the dose may be increased. Treatment is kept up until the crusts can be readily removed and all pruritus has disappeared. The result in early cases is restitution of the skin to a normal condition. In older cases scars result. The author has had almost universal success in nine cases treated by this method, and he believes that it throws some light on the etiology of the affection. But whether this disease is due to the invasion of the glands of the skin by some irritant body, to an anomaly of the secretions, or to an excretion of toxins, the fact remains that the excretion of quinine by the sweat-glands has a beneficial effect. The latter may be due to a destruction of the irritants or to a regulating influence on the secretions. The iodine, he believes, has a strictly local effect.

Transvesical Cauterization of the Prostate.—The well-known difficulties of the Bottini operation on the prostate require no repetition here, but are sufficiently familiar to every operator to have it granted that they constitute cautions of great importance from the beginning to the end of this procedure. A. I. BOUFFLEUR (Ann. of Surg., July, 1902) discusses transvesical cauterization as a substitute for the Bottini operation in the treatment of some forms of prostatic hypertrophy. The advantages of this technic he summarizes briefly as follows: (1) It admits of an accurate anatomico-pathologic diagnosis which is fundamentally essential to intelligent treatment; (2) the cauterization may be made with the galvanocautery, or with the more commonly possessed Paquelin cautery, easily, rapidly and with safety, a curved cautery-blade greatly facilitating the procedure; (3) the incision may be accurately placed; (4) one may see the field of operation and the structures being cauterized; (5) the length and depth of the incision may be regulated to meet the requirements in the particular condition found; (6) the temperature of the blade is under direct ocular observation; (7) the time of application may be regulated so as to insure destruction of the tissue, and if the Paquelin is used it may be applied with sufficient force and time to make the incision, regardless of the density of the tissue; (8) there is no danger from bending of the cautery; (9) if hemorrhage does occur, its location may be definitely determined, and measures for its control intelligently and effectively employed, as has been demonstrated by Eisendrath; (10) it is applicable to all forms of enlargement projecting into the bladder, and particularly so in the removal of pedunculated lobes or valve-formations (a partial prostatectomy, followed by cauterization, being an ideal procedure for such conditions); (11) it is applicable in all cases regardless of urethral obstruction, and such obstructions may frequently be readily removed from within; (12) it admits of the removal of a calculus, or the direct treatment of an ulcer, and also admits of suprapubic drainage if the cystitis seems to require it, or if the urethra is impermeable from within; (13) it is not as likely to be followed by infection, phlebitis, sepsis, etc., as is the uncertain urethral operation. In short, it is a simple, rational, comparatively safe and satisfactory method of applying the cautery to prostatic enlargements projecting into the bladder. It would seem to bear practically the same relationship to the urethral operation as open herniotomy bears to the blind method of dividing the constricting ring in strangulated hernia. With careful operative technic and proper catheter drainage, the possibility of the establishment of a fistula is practically eliminated, particularly so when these patients are operated upon early, before secondary changes in the bladder have occurred. The vesical mucous membrane and wound may be readily protected by compresses under retractors, and the collection of urine controlled by sponge compression or the use of the dentist's aspirator. In contracted bladder this operation would be very difficult, and should therefore be avoided. As the Bottini operation is admittedly of no value in such cases, prostatectomy or perineal drainage should be employed if operating at all is determined upon. This being an operation attended by some shock and considerable pain, a general anesthetic would of course have to be employed. This might be positively contra-indicated in some very old, feeble and nephritically septic patients, and in these the urethral route would probably be indicated. However, in this extreme class of cases, which will rapidly grow smaller since prostatic surgery is now rapidly progressing, simple vasectomy under local anesthesia offers quite as much encouragement as the Bottini operation.

THERAPEUTICS.

Effect of Tonics on the Intestines.—It is shown by A. Jodlbauer (Arch. internat. Phar. et Thér., vol. x, fasc. iii and iv) that bitter tonics with the addition of sugar do not at once act upon secretion and re-absorption in the small intestines. If, however, the tests are made after the drugs have remained in the gut for an hour, resorption and secretion will be found to be markedly increased. The action seems to be specific and purely local.

Purgatin.—The virtues of purgatin, a new synthetic laxative, are lauded by K. V. Hosslin (Münch. med. Woch., August 12, 1902). The tasteless and odorless powder is readily taken, even in larger doses, without ever causing nausea or other bad after-effects, such as colic, tenesmus or repeated watery stool. After ½—1½ grains the desired effect took place in 13 hours; after 2 grains, in 6 to 7 hours. The best time of administration is in the evening. The stools are invariably soft and voluminous and of a reddish-brown color. The patient's attention should be drawn to the fact that the urine may also contain some pigment. A tolerance is not established.

Treatment of Migraine.—Considering this disease as the result of toxin absorption, J. M. Aikin (Jour. Am. Med. Assoc., August 30, 1902) has had good results from the use of diuretics, diaphoretics, and hydrogogues. In each case their efficiency is greatly increased by water as a diluent. From the inception to the conclusion of a migrainous attack, digestion is practically suspended. This condition demands the withholding of nutrients, with immediate dilution and elimination of the gastro-intestinal contents. Emesis and gastric lavage are efficient, but objectionable. A soapsuds enema, followed by high irrigation with a large quantity of hot salt solution, is preferable. Small drafts of hot water, often repeated, should also be given for six to 12 hours. Between attacks, daily and copious drinking of water will lessen the severity, if not also prevent recurring paroxysms. During the prodromes vigorous acceleration of the blood-current may help to abort the attack. Any existing ocular, aural, nasal, gynecologic or rectal defect should, of course, be corrected. Diet must be carefully attended to, and the abuse of a defective nervous system be made the subject of warning.

Action of Phosphorus.—Since but little of the ingested phosphorus is excreted in an oxidized form, it is the opinion of K. Stich (Münch. med. Woch., August 12, 1902) that its action is a purely indirect one, and that by its presence the processes of oxydation, which are essential to life, take an abnormal course. He also believes that the ozonized oil of turpentine, which is used an antidote, is not sufficient, in that it forms a combination with the phosphorus; since the crystals precipitated by keeping the latter in turpentine are most probably nothing but phosphorus itself. It is most logical to assume that the oxygen contained in the oil is available for the processes of oxidation, which are disturbed by the phosphorus.

Treatment of Tuberculous Laryngitis.—A factor of prime importance in the prevention of tuberculous laryngitis consists in treating promptly all forms of laryngitis having a tendency to become chronic, especially in tuberculous subjects. L. Rethi (C'blatt f. a. ges. Ther., August, 1902) likes the application of lactic acid in early stages where the ulcers are yet small. Somewhat more radical, but at the same time safer, is the scarification and curetting of the mucous membrane, which can be rendered painless by cocainization. It is well to follow up this treatment by lactic acid. The galvanocautery also does good service, but great care must be taken not to resort to all these means in advanced cases with progressive lung lesions. Disinfection of the surfaces is hardly ever possible, since new contamination from the lungs always takes place. Pain is best controlled by the application, especially before meals, of cocaine, eucaine, orthoform and anesthesia. Sometimes incisions into the epiglottis, or removal of portions of it, is followed by relief. Urgent dyspnea frequently makes tracheotomy necessary, and this is sometimes followed by a marked improvement, though in other cases the wearing of a tube seems to hasten the process.

THERAPEUTIC HINTS.

Edema of the Glottis.—

℞ Alum
Ac. tannici, aa gram.. .. .. 5.0 (gr. lxxv)
Ext. Krameriæ.. .. .. 10.0 (ʒiiss)
Aq. q.s. ad.. .. ..500.0 (Oj)

Atomize into throat five or six times a day.—Comby, in *Le Progrès Médical.*

Dandruff.—

℞ Tinct. cantharidis
Ac. carbolici
Spt. lavand.
Balsam Peruv. aa c.c.. .. .. 2.0 (ʒss)
Spt. rosmarin. gtt.. x
Aquæ Cologniensis ad c.c.. .. ..240.0 (℥iij)

—*Le Progrès Médical.*

Acute Laryngitis.—

℞ Menthol, gram.. .. .. 3.0 (gr. xlv)
Ol. pini sylvestris
Ol eucalypti
Tincturæ benzoin.
Tincturæ tolutanæ.. .. .. 2.0 (ʒss)

Inhale from steam-kettle or vaporizer, or when evaporated in an iron spoon over a lamp.—*Le Progrès Médical.*

THE MEDICAL NEWS.

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A COUNTRY'S HEALTH ITS BEST ASSET.

The most forceful idea that the Belgian Congress stamped upon those who represented the United States of America was that if our country would avoid some of the terrible conditions of European nations it must organize its methods for prevention and treatment of venereal disorders as thoroughly as it did those against cholera and plague.

The health of its people, of its army and navy, is well called a nation's most valuable asset, and whatever the cost of its preservation, in the expenditure of money and executive energy, such outlay is a remunerative investment. Unquestionably laws must be made to control the spread of venereal diseases, and to this end bureaus or commissions should be established in existing health departments.

It was with no very great degree of pride that the American representative of the Medical News found himself one of only three men to represent the United States, while other countries had sent medical, sanitary, and legal experts to study the momentous question before the Congress. Neither did it redound to the credit of the wealthiest of nations that, with the exception of Greece, she was the only country that contributed nothing, either through her national government or her civic bodies, to defray the expenses and increase the resources of this great international conference.

On the other hand, the example of the brilliant little kingdom of Belgium was almost startling. She contributed more than many of the greatest nations to the funds of the Congress. She entertained its members with stately dignity; her Minister of State set apart five days of his time in order that he might preside at the meetings, and whenever quesions were discussed bearing on some definite and practical working method, it was Belgium that, by reason of carefully kept statistics and well-organized experiments, could best say whether an idea was chimerical or useful.

From the diverse views of thirty-six countries it would be premature to select those methods of prophylaxis which might be most applicable to our own. But the need of the country is so great, and the danger so threatening, that we insist that the United States Government, following the example of Belgium, should entrust the subject to a special convention of medical, sanitary and legal experts for discussion and suggestion of measures which may be enforced to prevent the spread of venereal diseases.

BORIC ACID DANGERS.

The result of a series of important and interesting observations as to the effect of boric acid upon the gastro-intestinal tract of human beings has just been announced by the Imperial Bureau of Public Health of Germany. The observations were made by one of the health officers on himself and on four subordinates in the Health Department, who voluntarily offered themselves for the experiment. During the time of the observation all concerned proceeded as usual with their ordinary occupations, taking abundant but carefully weighed diet. All the precautions necessary to prevent pathological results were duly and carefully observed. These were noticeable particularly in disturbances of nutrition and metabolism. A few days after boric acid began to be taken in appreciable quantity the absorption of fat and albumin from the intestine became markedly lessened. This led to the retention of considerable material in the intestinal canal at first, which after the lapse of a few days became liable to fermentation and proved the source of diarrhea. Associated with the failure of absorption of proteid materials there was from the very beginning an increased elimination of water from the system. These two factors soon brought about a decrease in weight which in some cases threatened to prove serious. Notwithstanding the failure of fat absorption and the increased water elimination the persons experimented on never felt an increased hunger or thirst. The harmful effects were most insidious and might easily have escaped notice until a serious condition was reached.

The details of such observations require to be worked out with great exactness and altogether twelve experts in physiological chemistry were employed on the metabolic problems involved. It was found that boric acid is eliminated very slowly from the body, and even after a single dose traces of the drug can still be found eight days later in the secretions. It is thus seen to lend itself very readily to accumulation in the system so that when taken, even in small daily doses, there may after some days be enough of the drug present at one time to produce serious results.

The German Government has decided then that boric acid must not be employed for the preservation of foods and especially not for the prevention of fermentative changes in milk, for the drug is liable to be much more serious in its effects upon children than upon adults.

This investigation and the resultant decision should perhaps call attention to a certain possibility of the abuse of boric acid in this country. The idea has become very common that this drug is not only a good antiseptic but is absolutely harmless in its effects. The result is that solutions of boric acid of various strengths are used very copiously by many people as a nose and mouth wash, and they are employed freely as a gargle. The ingredients being considered as completely devoid of danger very few precautions are taken against swallowing the solution and there are many people who deliberately allow a certain amount of the fluid to pass into the stomach with the idea that it will do good because of its cleansing properties. Under ordinary circumstances when nasal drenching and mouth washing are practised only once a day or less often, there is no risk involved, but when much more frequent mouth and throat and even stomach ablutions are employed an amount of the drug may easily be absorbed that will seriously disturb the metabolism of delicate individuals.

The great objection to the habitual employment of any drug by the general public is the liability to abuse it because of the well-recognized popular tendency to exaggerate its advantages and so employ it too freely. This was very manifest a few years ago with regard to the popular use of chlorate of potassium. Whenever there was the slightest symptom of sore throat or even sore mouth, this by no means innocuous remedy was apt to be employed much more freely than any physician would dare to prescribe it. Harm resulted in not a few cases and especially in patients who were suffering from some kidney irritation at the time the sore throat developed.

Not a few children in incipient stages of scarlatinal sore throat were dosed with the drug to the decided disadvantage of their kidneys in the subsequent effort to eliminate the toxins of the scarlet fever. Boric acid is fortunately not so dangerous a remedy as chlorate of potassium but there seems a probability of its abuse along similar lines. Physicians should realize this and warn delicate nervous patients whose tendencies to exaggerated solicitude as to cleanliness of mouth and throat and nose may lead them into too frequent employment of boric acid solutions and of the danger which the practice may involve. The realization may also serve as an explanation of obscure symptoms of nutritional disturbance which have hitherto proved baffling to medical attendants.

PARATYPHOID FEVER.

MOST physicians of considerable experience in the management of typhoid fever have been persuaded for some time that the cases of the disease under their observation did not all belong to a single affection. Some of them, while clinically very like the classical type, were yet capable of a certain differentiation, and for not a few it was impossible to trace the source of infection with typhoid bacilli or to find any connection with previous cases of true typhoid fever. Since the introduction of the Widal test this impression has been strengthened by the fact that in all sets of statistics a definite number of cases of continued fever exhibiting all the chief clinical symptoms of true typhoid failed entirely to produce the agglutination reaction.

A series of recent contributions to this interesting and important subject seems to demonstrate that there are several diseases embraced under the designation typhoid due to bacilli bearing certain morphological relations to true typhoid bacilli but absolutely independent of them in origin. These diseases provide no protection against typhoid fever, and they furnish a basis for the frequent occurrence of certain complications not so usual in the affection due to the bacillus of Gaffky and Eberth. For these diseases the name paratyphoid fevers has been suggested. How closely these paratyphoid affections may simulate true typhoid fever may be judged from Brion and Kayser's case reported in the Münchener medicinische Wochenschrift, No. 15, April 12, 1902. Rose-spots were noted early in the disease; there was an enlarged spleen and the diazo-reaction was positive, and besides these there was the usual continued fever, followed by two relapses and a thrombosis of the veins of the left leg. In this case the paracolon bacillus was isolated in cultures from the blood, the urine, the feces, the vaginal secretions and the rose-spots. No typhoid bacilli were found anywhere, and the Widal test remained persistently negative during the whole course of the illness.

It seems clear then that the only positive diagnostic test for typhoid fever is the presence of the Widal reaction. Cases in which this does not occur are not true typhoid, no matter how close the clinical resemblance. Dr. Hewlett, in an article in the August number of The American Journal of the Medical Sciences reviews the recent literature on the subject, and shows that there is really a group of paratyphoid affections. One of these diseases seems to be due to a bacillus closely resembling that isolated in Paris nearly ten years ago from a series of infectious pneumonia cases that were traced to a corresponding malady in parrots and hence called psittacosis. Another is due to a micro-organism that resembles the bacillus known as the cause of hog-cholera, and with regard to which there was a lively discussion between Reed and Carrol and Sanarelli some two years ago in the columns of the Medical News, Sanarelli claiming to have discovered the specific cause of yellow fever in a micro-organism of this group. Both these bacterial relationships are of clinical importance and highly suggestive value because they hint at modes of infection from animals which further observation may serve to establish.

It would not be surprising to find that the typhoid-fever group of diseases contained many members. Considering the very large number of different micro-organisms that are known to exist, the limitation of the infectious diseases to which man is liable to the few so far capable of differentiation is a biological mystery. It is probable, however, that our present number of infections will be greatly increased before many years are past. Names of diseases supposed to designate a single nosological entity will be found really to represent groups of kindred but independent affections. The question of a "fourth disease" in the measles-scarlet-fever group is now freely discussed, and good authorities consider that an excellent case has been made out by the English physician Dr. Deekes for the new disease.

Until the discovery of the Widal test typhoid fever for many anomalous cases was considered one of the most difficult of diagnostic problems. The distinguished French clinician Potain declared that the discovery made by Widal solved the medical riddle of the nineteenth century. Now at the beginning of the twentieth century we find that while the serum-agglutination test has proved an extremely valuable diagnostic auxiliary it has also served to create new and even more difficult phases of the problem of diagnosis in enteric affections. The recognition and tracing of the origin of the various paratyphoid affections may prove for a time to be new riddles. The serum-agglutination test is not absolute for the differentiation of all these affections, since the sera after certain of them will agglutinate other forms of bacteria besides those directly causative of the patient's illness at the moment.

These new ideas in typhoid fever may serve to explain certain hitherto inexplicable features of the disease. Sporadic cases assumed to be typhoid fever have often been reported in which any possible connection with previous cases of the disease seemed out of the question. These cases have been regarded as justifying to a certain extent the theory that typhoid fever might originate anew without necessarily being contracted from patients admittedly suffering from the disease. Most of these cases will now fall into the group of paratyphoid fever, though their origin may remain as mysterious as before. Clinical observation may, however, step in to aid bacteriology in this matter, and may show that these affections are really communicated through animals or by some other distribution of disease.

THE GENESIS OF PRACTICAL HYPNOTIC SUGGESTION.

Baron Munchausen has passed away, and Harun-al-Raschid no longer walks the streets of Bagdad in search of miraculous adventures with which to beguile the young and overcredulous, but there seems to have been a composite reincarnation of the spirits of the two, the primary manifestation of which is reported in the London Hospital, thinly disguised as a lecture delivered before the Kings College Medical Society.

Since hypnotism can hardly yet be classed as one of the exact sciences, and as the methods proposed for hospital and asylum administration are radically at odds with those in use in this country at the present time, it is perhaps well to quote the exact words of the essayist in order to show that if little has been extenuated still less has been set down in malice.

After describing the experiments of Florell, the late medical director of the Burgholi Asylum, and one of the professors of the University of Zurich, he goes on to say that "he had succeeded in hypnotizing all the hospital attendants, both male and female, a large proportion of them becoming profound somnambules. For ten years the most careful experiments were made in regard to the use of hypnotism in the night-watching of dangerous lunatics. Warders were hypnotized and trained to sleep by the bedside of these patients and to awake the instant they heard them attempt to get out of bed, the hypnotic suggestion being made use of to inhibit all sounds which had no reference to the duty laid upon them, and it was found that warders so hypnotized could perform night duty for six months, and work hard all day, without showing signs of fatigue."

Can anyone imagine a fairer picture than this magic ward, where the solemn silence is forever unbroken by the careless rustle of a female skirt, and the patient is never roused by the echo of a tiptoe step? The enchanted palace of the sleeping beauty, watched and guarded by a corps of trained nurses, who "work while you sleep," and still gather strength and vigor for the coming day; incapable of distraction; "inhibited" from all sounds; dead to the world; yet at her slighest movement alert and active, possessed of a motor fully warranted for six months, and of a guaranteed capacity for work through the entire twenty-four hours of the day! Could anything be so simple and withal so economical? And we are assured most earnestly by our lecturer "that for a period of over ten years these experiments were uniformly successful and no accident of any kind occurred."

As to its practical administration, he refers to and endorses the method of Wetterstrand, that replaces the short and profound trance during which the "suggestions" are imparted by one less deep but which is sustained for a much longer period. Thus, in treating epilepsy and other serious nervous disturbances, this system—based perhaps on the principle of "love me little, love me long"—is kept up continuously for three or four weeks, during which time the patient is fed at regular intervals, but without being roused, while the action of the bowels and bladder is regulated by suggestion, these means securing, as he states, both mental and physical rest, in addition to such therapeutic advantages as might be gained by the aid of the former. He also claims that a profound impression of the hypnotic condition is not necessary for the successful employment of suggestion, and believes that there are very few people who are not in some degree susceptible to its influence. And so his field is by no means limited, either in the procuration of his "Gold-dust Twin"-like warders, or by an inability successfully to hypnotize his patients. Among the diseases in which the treatment is indicated and which it "cures" he particularly mentions hysteria, neurasthenia, dypsomania and other drug habits, obsessions, moral perversities and nervous tricks in children. A goodly list surely, and quite equal to the American standard, as it claims everything, with the possible exception of its being a desirable relish "to eat on bread."

This then is the sum and substance of the latest hypnotic development, and we confess ourselves in doubt whether it is a joke of our transatlantic cousins, to be taken as the Lady of airy persiflage, or if it is written seriously and is to be regarded as the Tiger of practical and severe research. The latter, we imagine, since the British are not, as a race, given to lightsome badinage in their statements of fact, and their hospital reports are apt to be as staid and free from jests as are their comic papers.

As for the experiments, they resemble those of Shiffen, and though they do not bear, as did his, the evident earmarks of having been "made in Germany," yet they do carry the imprint of personal sincerity. So that between the horns of the dilemma there is little for us to do, perhaps, but to consider the whole matter as only one more example of "the queer things they say and the queer things they do, when it's English, you know."

The Harlem Medical Association.—At a meeting held June 4 officers were elected for the ensuing year as follows: President, Dr. E. L. Cocks; Vice-President, Dr. W. H. Luckett; Secretary, Dr. Percy H. Fridenberg, Treasurer, Dr. I. L. Feinberg; Trustees, Drs. J. E. Lumbard, M. R. Richard and Henry Heiman.

ECHOES AND NEWS.

NEW YORK.

To Fight Tuberculosis.—The Charity Organization Society's Committee on Tuberculosis needs at least $10,000 to meet the expenses of the work it has undertaken, and has issued an appeal for contributions. The money is needed to make possible further research into the social aspects of tuberculosis, for the distribution of pamphlets containing the results of scientific research and of modern treatment, for the encouragement of movements for public and private sanatoriums, and for the relief of indigent consumptives. The work is one which the society has made peculiarly its own, and which promises to be of great and immediate value to the community.

Bellevue Hospital Changes.—It was announced last week that Drs. Valentine Wildman and Allen Fitch, examiners in the department of lunacy, Bellevue Hospital, had resigned; that Major Russell, one of the stewards, had been suspended, pending charges against him, and that Chief Clerk Gleason had resigned on notification of his suspension. The facts were that although the steward and the clerk had been suspended, there was no great trouble in the hospital. Drs. Wildman and Fitch had been notified that at a recent meeting of the trustees it had been recommended that the pavilion for the insane should have three resident physicians, and that the former method of employing two visiting physicians who could spend only two hours a day at the hospital be abolished. They therefore tendered their resignations. Dr. Fitch said that as he wanted to go to Europe he would like to be relieved of duty at once. Dr. Wildman wrote that he would remain until the new system should be inaugurated.

Needs of the City Hospitals.—Commissioner Folks summarizes the present and future needs of the Department of Charities as follows: Extensive changes in existing buildings to introduce modern plumbing, heating and ventilating systems; the construction at the various hospitals and almshouses of separate buildings for the accommodation of employees; additional almshouse accommodation, both on Blackwell's Island and at Flatbush. It is the purpose of the Commissioner, as far as possible, to develop the Richmond county poor-farm, consisting of 114 acres; but he is of the opinion that, with the rapid growth of the city, the almshouse accommodation on Blackwell's Island and in Brooklyn must also be increased. He suggests, as a measure of economy, an electric lighting plant on Blackwell's Island for all the institutions located there. More hospital accommodation should be provided for consumptives. A hospital for convalescents should be built upon the island, in which those who no longer need medical treatment, but who do require a period of rest for complete convalescence, may get the rest they need prior to their discharge, so that when discharged they may resume their usual occupations.

Separation of Charities and Politics.—The chairmen of the Republican and Democratic State committees received last week a communication asking that their respective parties approve the policy of the absolute separation of public charitable administration from partisan politics. The communication was as follows: "The undersigned, acting individually, and as the representatives of others interested in the welfare of the unfortunate in this State who are dependent upon public care for support, respectfully request the two great political parties in this State to include the following principles in their respective platforms in the coming conventions: First—That the administration of the State hospitals for the insane, State charitable and reformatory institutions, and the State prisons be absolutely free from partisan influences of every description. Second—That these institutions be conducted on progressive lines, with due regard to economy, particularly of that form which is to be secured by scientific improvement of administration, and for the welfare of the inmates of the institutions and the protection of the State against the evils of disease, dependency and crime. Third—That citizens of the State acquainted by service and experience with its philanthropic activities should be invited to share in the management of the State institutions as a means of preserving these institutions from all danger of political influences which would be a great detriment to the unfortunates under their care and a lasting injury to the State." The appeal was signed by 10 of the most prominent and public-spirited citizens of New York.

The Board of Health and the Schools.—Several changes are to be made in the methods of the Health Board Inspectors in examining the children of the public schools. As far as possible, pupils are to be examined in rooms other than regular classrooms. The inspectors have already been instructed not to use their bare hands in examining children's eyes. Tufts of sterilized cotton must be used above and below the eyelids. These changes are brought about as a direct result of certain representations, on behalf of parents and teachers, made to Dr. Lederle, President of the Health Board, by Superintendent William H. Maxwell of the public schools. Severe criticism of the Health Inspectors' methods at the schools has been made, and Dr. Lederle, Dr. Maxwell and President Charles C. Burlingham of the Board of Education have had several conferences on the question lately. Rumors have had it that there was a serious disagreement between representatives of the public schools and the Health Department. It can be said, however, that whatever differences there were between these two departments were largely the result of a misunderstanding which has been cleared away. At the last meeting of the School Board Executive Committee before the summer vacation, Dr. Lederle presented a request that the Health Officer be allotted one room in every school for examining the children. That request was refused as unnecessary, and from that refusal dates most of the friction. In the building of future public schools, it has now been decided that the specifications shall include a room for the special use of the Health Department.

PHILADELPHIA.

Additional Gift to Hospital.—Mr. Meyer Guggenheim of New York has added $20,000 to his original gift of $60,000 for the erection of a building for private patients at the Jewish Hospital. The structure is to have four stories instead of three as at first intended.

Varying Opinions as to Almshouse Superintendent.—Some of the members of the Department of Charities and Correction disagree with the suggestion of a local medical journal that the superintendent of the almshouse and Philadelphia Hospital should be a physician. Acting President McLaughlin states that what is wanted in an institution like the one in question is a superintendent of wide practical business experience and humanitarian principles. Another member of the board says that to merge the position of resident physician in that of superintendent, with a physician occupying the dual office, would not be for the best interests of the institution.

National Prison Congress.—Many topics of interest were discussed at the sessions of the National Prison Congress held in this city during the past week—prison discipline, the whipping-post, juvenile courts, giving of newspapers to prison inmates, etc. The meeting of 1903 will be held at Louisville.

The Proctor Memorial.—At the final session of the American Pharmaceutical Association a perpetual memorial to William Proctor was decided upon. About $18,000 has been raised, and this sum will be applied to the award of a gold medal to be struck not more than once in three years, for the man who shall be adjudged to have most advanced the cause of pharmacy. The memorial will be known as the Proctor-Squibb medal, in order to honor also the name of the late E. R. Squibb of New York.

State Medical Society Notes.—The meeting at Allentown was one of the most profitable of recent years. The entertainment committee was very successful in its efforts to make the meeting pleasant socially, and the papers read were, if anything, above the standard of last year. There is still too much repetition of text-book and current literature in articles written to "report a case." The only serious mistake was the placing of the exhibit on the stage of the theater in which the meeting was held. During the unpacking of the first day and the packing of the last the noise was almost intolerable and interfered greatly with the program. The exhibit was mainly of drugs and instruments, though some scientific work was shown.

Charter Denied to Christian Scientists.—Judge Arnold of the Common Pleas Court has refused to grant a charter to the First Church of Christ, Scientist. This is the second time a charter has been refused, several opinions for refusal being given by various judges. One was on the grounds of practising medicine without due legal authorization, for teaching that disease does not really exist, and for teaching that it is unnecessary and inadvisable to employ approved methods recognized by medical practitioners. Judge Arnold's opinion differs from all others, and is worth quoting: "The charter applied for in this case covers a double purpose—a church and a business. We have power to grant a charter for a church, but we have no authority to grant a charter for a corporation for profit, that is, a business corporation. That the application is for a charter for a corporation for profit is shown by the statement in the proposed charter that the purposes for which the applicants desire to be incorporated are 'to establish and maintain a place for the support of public worship and to preach the gospel according to the doctrines of Jesus Christ,' as found in the Bible and the Christian Science text-book, 'Science and Health, With Key to the Scriptures,' by Mary Baker G. Eddy. What the gospel according to the doctrines found in the Christian Science text-book is, is shown in an article signed by Mrs. Eddy and published in the Christian Science Journal of March, 1897, in which she has written that the Bible and a book written by her called 'Science and Health, With Key to the Scriptures,' 'and my other published works are the only proper instructions for this hour. It shall be the duty of all Christian Scientists to circulate and to sell as many of these books as they can. If a member of the First Church of Christ, Scientist, shall fail to obey this injunction it shall render him liable to lose his membership in this church.' This shows that the so-called church is a corporation for profit, organized to enforce the sale of Mrs. Eddy's books by its members, which is a matter of business and not of religion. As the courts have no power to charter such a corporation, the application for a charter is refused."

CHICAGO.

Thousands for Charity.—The will of Oscar Rosenthal, filed September 13, gives Michael Reese Hospital, Alexian Brothers' Hospital, Chicago Home for Incurables, and National Jewish Hospital for Consumptives, each $1,500, and $7,500 to the United Hebrew Charities.

New Insane Asylum.—A great institution is to be erected near Chicago. There is to be built within an hour's ride of the city an insane asylum modeled after the Bloomingdale institution of New York, the Pennsylvania hospital for the deranged in Philadelphia and some of the other asylums in the Eastern states. The plan for the institution has been under discussion quietly for some time, but the recent criticism passed upon the management of nearly all the State asylums brought matters to an issue. A large sum of money has been pledged by wealthy citizens for the establishment of the asylum, and many of the city's leading physicians are interested in promoting the work. Among these physicians are Drs. H. J. Brooks, D. R. Brower, H. N. Moyer and Sanger Brown. It is the intention to conduct the new asylum as the great hospitals—St. Luke's the Presbyterian and others—are managed. There is to be no profit to any individual. All the money that may be earned or that comes from endowment after expenses are paid will be used for the care of indigent patients, for the enlarging of the institution and for giving the best possible means for the study of pathological conditions, so that each patient may receive individual and constant care looking to his cure—advantages which are not at present afforded in State institutions.

Typhoid on the Wane.—At the close of the week there were gratifying indications that the typhoid fever epidemic was abating. The total number of typhoid deaths reported—43—was 12 less than for the previous week, and during the last three days of the week there were only five, one and two, respectively, or a daily average of less than three, as compared with a previous daily average of seven for the six weeks preceding. The decline of the epidemic, as indicated by this decrease in the number of deaths, was further shown by the returns of cases admitted to the various hospitals. In the County Hospital there were only 240 cases under treatment at the close of the week, as compared with 373 the week previous—a reduction of 35 per cent. The decrease in typhoid mortality can not be attributed to improvement in the water-supply; it is due rather to the campaign of education begun by the Department of Health nearly two months ago as to the nature and cause of typhoid and the method of its prevention. Another indication that the height of the epidemic has been reached is the increasing duration of the disease in the fatal cases. The average duration of the sickness in the fatal cases in August was 17 days. During the first 13 days of September it was 22 days, and during the last week it was more than 27 days. As the average period of the incubation of the disease after infection with the poison is two weeks these latter figures show that the infection occurred at least 41 days previous, or in the latter part of July, when the water-supply was greatly polluted.

Black List in Rock Island and Moline.—The physicians of Moline held another meeting, September 9, to complete their plans for the compiling of a black list. Nearly all present submitted lists of people whom they considered dead-beats, and the others are to hand in their lists soon. These names will be arranged in proper form and each physician in Moline and Rock Island will be furnished a copy.

GENERAL.

Tri-State Medical Society of Alabama, Georgia and Tennessee.—The fourteenth annual meeting of this organization will be held in Birmingham, Ala., October 7, 8 and 9, 1902. Reduced rates on the certificate plan have been granted by the Southeastern Passenger Association from all points in its territory (south of the Ohio and east of the Mississippi rivers). A long list of interesting papers is announced.

Essays on Prophylaxis.—The Maltine Company announces that 208 essays on "Preventive Medicine" have been entered in competition for the two cash prizes—$1,000 and $500 respectively—which that firm offered last February. These essays are now in the hands of the three judges, Dr. Daniel Lewis of New York, Dr. Chas. A. L. Reed of Cincinnati and Dr. John Edwin Rhodes of Chicago, and their decision is awaited with great interest.

New Jersey's Sanitarium.—The commissioner appointed by Gov. Murphy to secure a site for the New Jersey Sanitarium for Tuberculous Disease, has selected the Joseph Fritts farm near Glen Gardner. The tract contains 450 acres, 200 of them woodland. The cleared land is south of the wooded tract, and has a southern exposure and complete protection from north, northwest and northeast winds.

Tuberculosis in France.—Statistics recently published by M. A. Rendu show that deaths from tuberculosis in England numbered 85 for every 10,000 inhabitants in 1869. In 1889 mortality from that disease fell to 16.4 for the same number of inhabitants. In France, in the same year, the proportion of deaths from tuberculosis was 33.70 to 10,000 inhabitants. In Germany mortality, which was formerly 34.3 in 10,000 from that malady, is now but 23 in 10,000. It is believed that the greater mortality which still exists in France, despite its more healtful climate, is due to insufficient knowledge and application of the prophylactic measures which have had so large an influence in the control of tuberculosis in other countries.

Dr. Garnault Again.—Dr. Baral of the Pasteur Institute says that guinea-pigs inoculated with skin from an arm of Dr. Garnault, who attempted to prove that tuberculosis could be communicated to human beings by animals, and in order to do so had himself inoculated with bacilli from a consumptive cow, have developed symptoms of tuberculosis. Dr. Garnault's book entitled, "Prof. Koch, and the Danger from Bovine Tuberculosis," a volume of 1,100 pages, has met with some adverse criticism, but also with a large amount of praise, at the hands of the French medical reviewers. On the other hand, it forms the subject of a violent attack in a recent number of the Münchener medicinische Wochenschrift, which is to a great extent a philippic upon the lack of professional ethics in France.

From Report of the Commissioner of Education.—During 1899-1900 there were in the United States a total of 151 schools of medicine, classed as follows: Regular, 121; Eclectic and Physiomedical, eight; Homeopathic, 22. The aggregate wealth of these schools was $12,462,497, with endowments of $2,236,087. Volumes in libraries numbered 158,464. Of dental schools there were 54, worth $1,276,500, with endowments of $105,000; volumes in libraries, 6,531. Schools of pharmacy numbered 53, worth $791,042, with endowments of $19,202; volumes in libraries, 33,719. Veterinary schools numbered 13, worth $375,000, with endowments of $5,064, volumes in libraries, 1,000. There were 432 training schools for nurses. The wealth of these schools, figured as pertaining to the hospitals with which the schools were connected, was $71,549,043, with endowments of $18,381,190. The total number of students enrolled in all these schools was 48,709.

Death-Rate in the Army.—The annual report of the Surgeon-General of the Army, made public at the War Department September 20, says that disease, injury and mortality in the army for 1901 were considerably less than they were in 1900. The death-rate from all causes was 5.29 per 1,000 of strength in Cuba, 6.90 in the United States, 7.81 in Porto Rico and 17.96 in the Pacific islands and China. Deaths from disease constituted only 3.21 per 1,000 in Cuba, 4.68 in the United States and 12.40 in the Pacific islands and China. The mean strengths of the commands were: In Porto Rico, 1,153; in Cuba, 5,297; in the United States, 26,515, and in the Pacific islands and China, 59,526. The report is signed by Gen. Forwood, who retired several weeks ago. He pays a high compliment to Major Walter Reed for his discoveries as to the propagation of yellow-fever germs, saying: "In the army as a whole only 14 cases, one of which was fatal, were reported during the year. All of these occurred in Cuba prior to the precautionary measures taken in consonance with the important discovery made by Major Walter Reed, Surgeon, and his associates, concerning the propagation of the disease by the bites of infected mosquitoes."

Obituary.—Thomas H. Phillips, M.D., born at Cannonsburg, Pa., March 25, 1839, and graduated from Jefferson Medical College, Philadelphia, in 1864, died in Canton, Ohio, August 30, 1902. Dr. Phillips was the oldest practitioner in Canton, and became nationally known by being the family physician of President McKinley. Previous to his graduation from Jefferson, Dr. Phillips was an assistant-surgeon in the Civil War, and was with Sherman on his march to the sea. He was widely known as a consultant, and was a member of the Canton Medical Club, the Stark County Academy of Medicine, the Northeastern Ohio Medical Association and the American Medical Association. Members of all schools of medicine attended the funeral services.

Dr. Charles Merritt, aged eighty-nine, died September 21 at the home of his son, Dr. Charles G. Merritt, a dental surgeon living at 134 South Third Avenue, Mount Vernon. Dr. Merritt was a leading physician of Bridgeport, Conn., and had practised in that city for many years. He had been living at Mount Vernon only a short time.

Dr. Charles H. Johnson died this week at his home, 209 Greene Avenue, Brooklyn. He was forty-eight years of age and was a graduate of the New York Medical University and of the Dublin Medical University, Ireland. He had practised medicine in Brooklyn for 22 years.

Dr. Walter Curry, for 20 years a practising physician in New York, died September 20, in Branford, Conn., of acute pleurisy, while visiting friends. Dr. Curry was a brother of Dr. J. L. M. Curry, who was sent by President Roosevelt as special envoy to Spain to represent this country at the coming of age of King Alfonso. He was the attending physician of the late millionaire William Marsh Rice for six months previous to the latter's death, and was to have been a witness in the proceedings over the Rice estate. Dr. Curry was born in Lincoln, Ga., in 1835. He was educated at the University of Georgia, and was graduated in 1855 from the medical department of the University of Pennsylvania. He served with distinction in the Confederate Army as a surgeon during the Civil War.

CORRESPONDENCE.

OUR BERLIN LETTER.

BERLIN, September 10, 1902.

THE FUNERAL OF PROFESSOR VIRCHOW—VACANCIES IN THE CHAIR OF INTERNAL MEDICINE—OPPOSITION TO THE APPOINTMENT OF PROFESSOR SCHWENINGER—THE KOCH-GARNAULT CONTROVERSY—ADMISSION OF RUSSIAN WOMEN TO THE BERLIN UNIVERSITY.

THE inexpressibly sad, but not unexpected, has come. Rudolf Virchow is dead. Yesterday was his interment. Quiet and peaceful was the end. Like the old warrior, whose life was nothing but fight and conquest, did he only lay down his sword when the grim reaper came to demand his tribute. The city of Berlin, whose growth and prosperity he had seen, and had aided by 43 years of unselfish and untiring service, had him buried from her municipal hall, and eulogies were delivered praising his deeds. Prof. Waldeyer spoke for the University of Berlin, Albert Trager for the Prussian Diet and Mayor Kirschner for the Magistrate of the city. They all lauded Virchow's qualities as a man of science, as a city officer and representative, as a physician and politician, in well-chosen words.

The notables from the scientific world, and the state and city authorities had assembled to pay their respects; but there was a peculiar lack of something, which could be felt but not specified. The entire affair impressed one more as a function, a formal tribute or ceremony, than as the sincere mourning of friends about the bier of their beloved brother and teacher. The functionaries were constrained to bow down reverentially before the achievement of that superior mind; they had to acknowledge the unalterable facts which he brought to light; but his heart, his great democratic heart, which beat until the last for the great common people, they dared not eulogize, because he was the people's tribune, and because liberty, progress and the emancipation of the masses through education had been the motto of his life.

Quite different was the celebration held in the large Workingmen's Club. Here also was a representative assembly, an assembly of the people, who mourned the loss of their teacher, their counsellor and knight, who for nearly half a century had fought their battles with his strong intellect and iron persistency. In this hall every face was sad and depressed; all seemed to feel that they had suffered a severe personal bereavement, that one who was always ready to defend their rights, and always laboring to improve their condition, had been taken from them forever. No orders, no nobility are needed, said the principal speaker, a physician, to put a man like Virchow in the foreground; no statues are necessary to perpetuate his memory; but his image and his deeds are engraved in the people's heart deeper and more lastingly than they could be in marble or bronze.

The second chair of internal medicine at the Berlin University is still vacant, as it has been since the death of Prof. Gerhardt. For a time it looked as if Leube of Würzburg would be the chosen, but it is now declared that a younger man will be selected, possibly Naunyn, as both Prof. von Leyden and Prof. Senator are advanced in age, and cannot be expected to continue teaching for a great number of years.

Prof. Schweninger, the great medical nihilist, has retired from the chair of dermatology, and has been given that of state medicine and medical history, which was formerly held by the late August Hirsch, the eminent author of works on epidemics. The Berlin medical world—a considerable part of it at least—again felt outraged, and meetings were held and resolutions signed to disapprove the giving of the chair to one who never had worked scientifically in that discipline. Naturally these outbursts of indignation will be for naught, and Prof. Schweninger—who, by the way, is a very amiable gentleman—will take his chair when the semester begins.

Dr. Garnault's attack on Prof. Koch's latest tuberculosis promulgation at the London Congress has been more fierce than wise. In his book of about 1,000 pages he gives a large number of compilations, but very little new matter; he assumes much and proves very little, and he poses before the medical world in a way which, to say the least, is not very dignified. Neither are his arguments scientific. Koch, on the other hand, gives Dr. Garnault all possible chance to talk, and looks at the matter quite stoically, simply saying that the Parisian *confrère* cannot be taken seriously.

The admission of foreign women medical students at the Berlin University has been yearly increasing, and the main contingent has been furnished by Russia. This has for some time caused dissatisfaction in University circles, so that the authorities have had to do something. In consequence the conditions of admission for Russian women students have been made almost prohibitive, and there is no doubt that in the near future severer requirements will be made of all foreigners who seek to enter the University. It is now claimed that the preparatory education of most foreigners who come here for that purpose is not sufficient to entitle them to the privileges of the University.

O. WATERMANN, M.D.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

EXPERIMENTAL RESEARCHES INTO THE PATHOGENESIS OF APPENDICITIS—A NEW FORM OF TACTILE SENSIBILITY: TRICHESTHESIA—IMMEDIATE ANALYSIS OF NERVOUS TISSUE—UNUSUAL CONSTITUENTS IN NORMAL URINE—SPINA BIFIDA TREATED BY RADICAL OPERATION WITHOUT SECONDARY HYDROCEPHALUS—LIGATURE OF THE AXILLARY VEIN—FOREIGN BODY CARRIED TEN YEARS IN THE STOMACH—ABDOMINOPERINEAL REMOVAL OF THE RECTUM, FOLLOWED BY RECOVERY—NERVOUS IMPULSE FROM A MEDICOLEGAL STANDPOINT.

THE French Societies, at their recent meetings, investigated a number of important subjects. We present the following as of instructive merit:

J. MAUMUS, at the Academy of Sciences, July 28, 1902, read a paper upon "Experimental Researches into the Pathogenesis of Appendicitis." In order to verify the correctness of the theory of a closed vessel in the pathogenesis of appendicitis, he passed a ligature around the extremity of the cecum in a blue-faced monkey from the Kongo district of Africa, of the species scientifically known as the *cercopithecus cephus.* He was obliged to select this species of the monkey, because it is not until the anthropoid apes are reached that any arrangement of the vermiform appendix comparable to this viscus in man is found. After two days of sickness the animal appeared to recover entirely. On the 22nd day he killed it, and found at the autopsy that there was no lesion whatever of the parietal peritoneum.

In the cecal region he found various modifications, due chiefly to the defensive processes of nature in the formation of adhesions between the cecum and the loops of the neighboring intestines, and hypertrophy of muscular tissue, notably of the circular fibers, which had invaded almost completely the cellularmucous layer of the mucous membrane. Finally, there was a large number of macrophagic cells with microbes in every cell, bodies of a small, cellular nature, which appear to give origin to them. These phenomena are comparable to those which are seen in birds after ligature of the cecum.

Vaschid and **Peruso** read a paper entitled "Concerning a New Form of Tactile Sensibility: Trichesthesia." They stated that they could assure the Academy that in regions of the body covered with hair, in addition to the ordinary general tactile sense, there was a special form of sensibility to touch, which they proposed to name Trichesthesia, deriving it from the Greek *Thrix*, a hair, and *Aesthesis*, sensibility. In order to gain evidence of this sensibility, they used needles which weighed from .80 to .005 of a gram. By this means they proved that the subject with whom they were experimenting could practically always perceive when irritation was made at the base of the hairs, in the ratio of five out of six attempts. Much less frequently, namely nine in 26 experiments, did they find him to perceive touch when the tip of a hair was irritated. This form of sensibility is practically invariable in the same individual, examined a number of times, after different intervals. It appears to be entirely independent of general sensibility, with which, indeed, it seems to bear an inverse ratio. In short, it is influenced by divers physical factors; namely, the amount of moisture in the air, and also, without doubt, by the mental and nervous condition of the patient.

N. A. **Barvieri** addressed a note to the Academy relative to "The Immediate Analysis of Nervous Tissue." By this process of analysis he has succeeded in obtaining three groups of substances; namely, those soluble in ether; those soluble in water and ether, and those which remain behind as residue after these processes. They contain respectively 1.22, 1.40 and 2.15 per cent. of phosphorus.

S. **Dombrowski** submitted a paper to the Academy concerning certain results recently obtained by him in a method which he has just published. By this it is possible to show in normal human urine 2.50 to five grams of nitrate of soda in every 100 liters of certain ptomaines, especially cadaverine, and even mannite in a proportion of nearly two grams to 100 liters.

Pique, at the Society of Surgery, July 30, 1902, on behalf of the operator, P. Delvet, read a paper on "Spina Bifida Treated by Radical Operation, without Secondary Hydrocephalus." The subject was a patient in whom, 15 months before making the report, he had done a radical operation for the cure of the disease, located in the lumbar region. In spite of the danger of hydrocephalus of secondary type, which the Surgical Society has declared to be the rule after such operations, Delvet did not hesitate to interfere, because there was great likelihood of a spontaneous rupture of the pouch. He made a radical operation by means of a cutaneous autoplasty by sliding (*glissement*). The effect upon the young subject of this operation had been very satisfactory, and up to the time of this report there had been no indications of a secondary hydrocephalus.

Kirmisson, in the discussion, said that in order to appreciate the value of this interference, due regard must be given to various anatomopathological conditions. It is a matter of regret in particular that as a rule histological examinations are not carried out, because it is possible that this operator was dealing simply with a meningocele. If this was the case, it is not a matter of astonishment that the cure of the spina bifida was not followed by hydrocephalus.

Demiun, in behalf of Meriel of Toulouse, read a contribution on "The Ligature of the Axillary Vein." The case concerned a report of injury to this large vessel during the course of a clearing out of the axilla for neoplasm of the mammary glands.

The tying of the ligature of the vessel was not followed by any edema of the upper extremity, probably on account of the enormous number of anastomoses which had been described by Kadyi. Demiun stated that he had opened the axillary vein while removing glands broken down from tuberculosis from the axilla. This was followed by enormous hemorrhage. Muriel, he observed, does not state whether the nature of the hemorrhage in this case was important or not, which raises the point that possibly the vessel itself had been already partly obstructed by the growth, which would of course gradually promote anastomosis and make a ligature a less serious matter.

Cerne of Rouen reported that he had removed a foreign body which had remained in the stomach upward of 10 years, without having caused any inconvenience to the patient at all appreciable. It was a small spoon. This appears to have remained mobile in the cavity of the stomach, where it did not promote any lesions at all of the stomach wall, so far as the operator could see at the time of removal. The operation was exceedingly simple. A high incision was made, to the right side through the rectus muscle, and near the level of the tenth rib.

Hartmann, on behalf of the operator, M. Riche, reported a case of removal of the rectum for carcinoma by the joint or abdominoperineal method. This observation was very similar to one recently published by Quénu at an earlier meeting. Recovery from the operation was delayed considerably for several months by suppuration secondary to a damage to the rectum unavoidable during the course of the procedure.

The twelfth annual session of the French Congress of Alienists and Neurologists was held in Enoble, August 1 to 7. **Garnier** read a paper on "Nervous Impulse from the Standpoint of Medicolegal Relations." There is no doubt that insanity or impulse of uncontrollable degree is the basis of many crimes, and that which causes interest in them is that this diseased or unbalanced impulse is often conceived quite independently of any condition of delirium. It seems as if though in many cases an indefinite moral condition obtains, which is not accompanied by delirium, but which, by a form of nervous explosion, so to speak, or mental compulsion, becomes converted into a destructive fury. After this outbreak of violence—this motor discharge—there is a period of calm, which is directly similar to a calm following seizures like epilepsy. One finds himself practically in the presence of a nervously undone individual, entirely astonished at his act, and who often shows an unfeigned surprise at finding himself guilty of committing such an act. To such a degree is this true that he hardly recognizes his responsibility, and is more apt to feel that he did it in a condition of delirium. The judge or magistrate, on the other hand, cross-questions the man, and finds a partly or entirely normal mental condition. If, now, the circumstances of the case point towards deliberation on the part of the criminal, the conditions become exceedingly difficult for the expert. It is important, therefore, to recognize that medicine deals with melancholia, for example, without delirium, and regards this disease to be much more moral than intellectual. There seems to be a particular mental dizziness (vertigo) or unbalance in which various acts of homicide or suicide may be carried out almost in the same manner as reflex acts.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-Second Annual Meeting, Held at Allentown, September 16, 17, *and* 18, 1902.

FIRST DAY—SEPTEMBER 16.

THE President, Dr. Francis P. Ball of Lock Haven called the meeting to order and introduced the Rev. S. G. Wagner, who offered prayer. Hon. F. E. Lewis, Mayor of Allentown, welcomed the members of the society to the city in a short speech, in which he referred to the old family physician of his boyhood days. This man had no competition, as he was the only practitioner in the town, but his good deeds, actuated by conscientiousness, endeared him to all. Following this was the address of welcome by Dr. E. H. Dickenshied, President of the Lehigh County Medical Society, who spoke of the great satisfaction of that society in securing the meeting of the State organization. The natural beauties of the city of Allentown were described and the proverbial hospitality of its people emphasized.

The first session was devoted entirely to the transaction of business, including reports of committees, new business, etc. The report of the Secretary showed a much larger increase in membership during the past year than during the year preceding, the members now numbering 3,518. The committee to examine school text-books scored the present books on physiology and hygiene in no uncertain terms. The statements regarding alcohol and tobacco in particular present such a distorted and perverted treatment of facts that they should not be taught to children. The committee recommended that the selection of such books be made by medical men.

Many changes in the by-laws of the society were recommended by the committee which had been considering this matter during the past two years. The articles were finally adopted as a whole.

The State Examining Board gave the results of the two examinations held since the previous meeting of the society. A gratifying advance in the standard of medicine in Pennsylvania was reported. The colleges of the State, as regards the averages attained by their graduates before the State Board, rank in the following order: University of Pennsylvania, Woman's Medical, Jefferson, Medico-Chirurgical, Western Pennsylvania. At the opening of the afternoon session the scientific work of the meeting began.

The Ability of the Eye to Withstand Effects of Injury and Disease.—Dr. P. J. Kress of Allentown spoke of the effects upon the eye of degeneracy and various local and constitutional conditions. The stomach has more than a reflex influence upon the eye. The phenomena of sympathetic irritation were also discussed. In spite of these many influences the eye is often unaffected as regards its practical use. In regard to the resistance of the eye itself to local disease, the difference between its resistance when the general health is good and when it is bad was well pointed out.

I. A Case of Bitemporal Hemianopia; II. Optic Cellulitis following Bowman's Operation, with Introduction of a Leaden Style.—Dr. Walter B. Weidler of Lancaster reported briefly these two cases. The first was that of a woman of forty-one years, who had no history, except that of cerebrospinal meningitis at the age of nineteen, that could be considered of etiological importance. The diagnosis of tumor of the optic chiasm was made, as it was believed that this condition corresponded more closely than any other to the symptoms present. Case second was a young man who had a condition requiring Bowman's operation. Owing to his extreme sensitiveness, chloroform had to be given during the operation and also during the removal of the style. After 36 hours a severe cellulitis of the orbital tissues developed, which finally resulted in the loss of vision in the affected eye.

Severe Burn of the Eye and Face by Nitrite of Amyl, with Loss of Eye.—Dr. Edward A. Shumway of Philadelphia reported this case because of its unique character and as a warning of danger in the drug. The victim of the accident was a man of twenty-five years of age, who used inhalations of amyl nitrite from a bottle to ward off epileptic seizures. On one occasion the convulsion came on more rapidly than usual and a portion of the contents of the bottle was thrown over the right eye and that side of the face. The result was a deep burn of the cornea, causing a slough and the loss of vision, and a severe burn of the face. It was at first supposed that a bottle of acid had been used by mistake, but this proved to be incorrect. A study of the chemistry of the drug showed that the presence of acid in a fresh specimen obtained from a standard firm is out of the question. Exposure to light and air for some time, however, will cause decomposition and the formation of nitric and nitrous acids, which is the probable explanation of the effects in the case reported. Dr. Shumway's conclusions were: (1) Nitrite of amyl should be used only in the form of pearls; (2) if this is not possible, it should be kept in a cool place in a small well-corked bottle; (3) specimens frequently used should be tested often, and, if found to be acid in reaction, discarded.

Phlyctenular Keratitis Complicating Smallpox.—The case reported by Dr. Edward Stieren of Pittsburg was that of a colored boy, eighteen, who, in an attack of well-marked smallpox, developed eight phlyctenulæ in one eye. On recovering, the site of each phlyctenula was marked by a scar. After a few weeks the patient returned for treatment, five more phlyctenulæ having developed in the same eye. They healed under appropriate treatment. Dr. Stieren believes that lesions in the eye during variola are practically the same as on other parts of the body. Many staphylomas persisting after smallpox are described by him as beginning as phlyctenulæ. These are infected by the variola, and perforation results.

Corneal Tattooing.—The technic of this operation was detailed by Dr. J. L. Borsch of Philadelphia, who thinks that this method is not used nearly so often as it should be in the treatment of corneal opacities. He claims that most writers convey an incorrect idea as to how this operation should be done. The material should not be put on the eye and pricked in by means of four to eight needles in a bunch. It is artistic work and must be done with one needle. Chinese ink, made of the right consistency, with bichlorid of mercury, 1:5,000, should be used. The operation should be done in many stages, and the excess of ink removed by boric acid solution. He obtains very good results, and has never seen sympathetic irritation follow the operation. Sphincterectomy and tattooing will save the eyeball in many cases, and in some will improve vision.

In the discussion, Dr. Wendell Reber of Philadelphia said he used practically the same technic, but had not obtained satisfactory results.

Dr. Richard H. Gibbons of Scranton stated that this method, which was used so skilfully by Drs. Levis, Agnew and others, should again come into vogue.

Dr. S. D. Risley of Philadelphia had abandoned this method years ago because of the risk of irritation from the introduction of foreign substances into the vessels which still remained in the diseased tissue. Tattooed eyes look well soon after the operation, but the pigment introduced is later absorbed by the lymphatics and the operation must be repeated. In selected, slightly vascular corneas the operation may be permissible.

In closing, Dr. Borsch said he had neglected to mention that the ink should be combined with carbonate of soda, which makes the color permanent. He has seen results remain perfect during 18 or 20 years.

Epilepsy as Related to the Ocular Muscles.—This was the subject of a paper by Dr. Wendell Reber of Philadelphia. He finds that idiopathic epilepsy, so-called, has very often a connection with irritation in some part of the body. A common cause of this affection is some irritative lesion of the visual apparatus. For this reason, a careful study of the refraction should be made in every case of non-focal epilepsy. Correction of errors by glasses will often effect a cure. When they fail, tenotomy may accomplish the end, and should be used as a last resort. Cases in illustration were cited, the epilepsy being changed to a very minor form or entirely cured.

Chronic Sphenoid Abscess.—Dr Lewis S. Somers of Philadelphia said that most cases of this affection were treated as nasopharyngeal catarrh, thus making it appear a much rarer disease than it really is. The symptomatology was dwelt upon at length. The falling of purulent material from the posterior nares is significant. Pain is usually constant and quite often localized in the sphenoidal region by the patient. Ocular symptoms are often present. Examination will reveal pus oozing from the sinus. The case of a man twenty-eight years of age, who had headache for 14 years, was reported. Treatment was effected by irrigation and removal of necrosed bone.

Removal of the Tonsil.– Dr. Louis J. Lautenbach of Philadelphia claims that an enlarged tonsil is synonymous with a diseased tonsil. If symptoms are pronounced, the tonsil should be removed for the constitutional effect. He enumerated a long train of symptoms that may be caused by disease of those organs. Removal should be done at once, and in a most thorough manner. The Tonsillotome should be followed by the cautery and, if need be, by scissors, in order that the removal may be made sure and entire.

Mental Disorders.—Dr. J. Moorhead Murdoch of Polk spoke on "The Feeble-minded," a subject which he has especially studied for some years. Of the 100,000 feeble-minded persons in the United States there are something like 10,000 in Pennsylvania, 2,000 being in institutions for this class alone. Such treatment is strongly endorsed by Dr. Murdoch, one great advantage being the impossibility of begetting offspring and thus increasing the number of sufferers from this easily transmissible affection. The etiology was discussed at length by the speaker, he having personally examined 800 cases. In 106 of these there was a history of alcoholism in one or both parents; in six there was an ancestral history of syphilis, that condition not being so common a cause as generally supposed; a family history of tuberculosis was present in 79 cases. Among the most common causes after birth are defective nutrition, infections diseases and the use of opiates when the child is very small, as the employment of paregoric, soothing-sirups, etc. On an average, 25 per cent. of all cases are epileptics; but instead of epilepsy being a cause of the mental defect, both conditions are usually due to the same cause. Medical treatment of these cases is essentially hygienic. Operations on microcephalics have not proven successful, Dr. Murdoch having never seen a patient improve after such a measure had been employed. Kindergarten and stimulating methods must be employed instead. To this end, feeble-minded children do much better when placed with their like than when mingled with normal children. In the latter case they suffer by comparison, and do not improve so rapidly. They should be sent to these institutions early, at least by the eighth year, and preferably during the fifth or sixth year.

The Treatment of the Insane in Private Practice.—Dr. F. Savary Pearce of Philadelphia said that he was becoming more and more optimistic regarding the prognosis in insanity. However, if the benefits from treatment of insane people are to increase still further, psychology must be better understood by medical men. Then many cases now sent to asylums will be treated at home, and often cured. Such cases are: Delusional forms of insanity accompanied by hysteria; depressive types seen most often in women near the climacteric; women exhausted by child-bearing, and who have become morbid; and many cases of sexual insanities. In these cases prognosis is very often favorable, and after a few months' rest at home, forced feeding, massage, hyoscin during excitable periods, etc., they are cured. The chronic insane, violent cases and many others are, of course, better treated in asylums.

Physicians as Expert Witnesses.—This was the theme discussed at the evening session by former Judge Edward Harvey of Allentown, after he had most heartily and wittily welcomed the society to that city. He defined an expert as a person of large experience and extended knowledge of the arts, or business, or the sciences. The value of expert testimony varies with the experience of the witness, and this must be actual experience. Facts gained by reading are of no value in court. Any person could become an expert in any branch if that were allowable. Judge Harvey then mentioned three points on which he wished, in a friendly way, to criticize physicians as expert witnesses: (1) Their statements regarding excessive severity of lawyers in their examination of witnesses. Lawyers are never severe if a witness is really an expert and is endeavoring to enlighten the court on the point in question. It is only when the witness evades the point at issue, or seeks to raise one of his own, or when in his ignorance he makes conflicting statements, that the lawyer becomes severe. (2) The disagreement of experts weakens the value of their testimony. Witnesses may see only one side of a question—that on which they are paid—and this will lead to conflicting statements. If questions of doubt are raised, as in the matter of insanity, different views are to be expected, but in ordinary questions of fact they should not occur. (3) Physicians as expert witnesses should not use technical terms that the court and jury cannot understand. This is not done by eminent scientists, the use of these terms being generally in direct proportion to the ignorance of the witness.

The Annual Address.—This address was delivered by the President, Dr. Francis P. Ball of Lock Haven, who took as his subject the antagonisms to the advance of scientific medicine. The antagonism of theologians of the past was considered at length. Among the points taken up were the treatment of the insane and opposition to the overthrow of witchcraft and to the study of anatomy by dissection. Now theologians are the most loyal supporters of medical men. Oppositions met in present-day advances were then discussed, among them being that of vaccination and animal experimentation. The entire subject was treated chiefly from the viewpoint of the layman.

SECOND DAY—SEPTEMBER 17.

Address in Medicine.—This address was delivered by Dr. A. O. J. Kelly of Philadelphia, whose subject was "Medical State-Board Examinations and Interstate Reciprocity."Dr. Kelly said that existing laws in many instances hampered regular practitioners and allowed much freedom to irregulars and quacks of all descriptions. Under the ridiculous state of affairs now existing a man may be a doctor in one State and not in another. Two avenues of relief are open: I. Reform in the method of conducting State examinations. II. Interstate reciprocity. Regarding the first point, many reforms are possible. Some objections to present State-board examinations are: (1) The inanity and asininity of many of the questions propounded. Dr. Kelly gave a long list of these as illustrations of his statement. He would have the questions in all fundamental branches confined strictly to the practical aspect. (2) Examinations are wholly written. These cannot be a true test of a man's ability to practice medicine. Candidates should be asked to examine patients, make diagnoses and prescribe treatment. Practical laboratory tests should be a part of the examination.. (3) The same questions are put to recent graduates and to old practitioners. This is unfair, especially to the latter. To obviate this, there should be a recent graduates' examination and a practitioners' examination. As to the second point, there are two methods under discussion—nationalization of examining boards, and interstate reciprocity. The former, typified by Dr. Rodman's suggestion of a voluntary examining board, is admirable in theory but impossible in practice. Interstate reciprocity should be inaugurated as a settlement of one phase of this vexing question. The confederation of the State boards of Indiana, Illinois, Wisconsin and Michigan is a step in the right direction. The action of the Maryland State board can also be commended as a substitute for reciprocity.

Unilateral Renal Hematuria.—Dr. Augustus A. Eshner of Philadelphia reported a case of this affection. The patient was a girl of twenty who had had hematuria since the age of eight. Symptoms of calculus of the right kidney were so pronounced that operation was made for that condition, after examination of the urine showed the presence of calcium oxalate crystals, red blood-cells, albumin and granular casts. Operation disclosed an apparently normal kidney. The wound was closed and healed promptly. Barring bloody urine for a few days following the operation, there has been permanent disappearance of the symptoms and of the hematuria since that time, now a period of two years. After operation a few concretions containing oxalates and cystin were passed, but they were made up mostly of blood-clot and are supposed to have had no connection with the subsidence of the kidney condition. The cure may be explained in two ways—the dislodgment of minute calculi by manipulation of the kidney, or a change in the circulation of the organ. However, neither is a satisfactory explanation. Dr. Eshner gave the analysis of 47 similar cases collected from the literature. Of these 31 were females. Ages ranged from eighteen to seventy-six years.

In the discussion, Dr. A. O. J. Kelly of Philadelphia said he considered these cases to be of not infrequent occurrence. A case similar to the one under discussion had been operated upon ten years ago with perfect cure. In one case reported by a German writer, autopsy revealed a telangiectatic condition of the pelvis of the kidney. This may be the cause in some cases.

Dr. E. B. Martin of Philadelphia said that one kidney may be diseased and one healthy in a number of conditions. Unilaterial hematuria may be due to a special vulnerability of the one organ. He thinks the curative effect of operation in these cases is mainly due to the fixation of the kidney resulting therefrom.

The Surgical Treatment of Gastroptosis.—This was discussed by Dr. H. D. Beyea of Philadelphia, who advocates, in cases where medical and mechanical treatment fails, a surgical procedure devised by himself. This consists in shortening the gastrohepatic and gastrophrenic ligaments by means of sutures, thus elevating the stomach. He had operated on three cases, and reports four others from ligature. In all of them the symptoms have been greatly ameliorated or entirely removed. This operation is considered superior to a similar one of other operators, in which the stomach is anchored to the parietal peritoneum or even to the ribs. This interferes too much with the natural mobility of the organ.

Pericardial Effusion as a Terminal Infection in Chronic Interstitial Nephritis. —Dr. H. B. Allyn of Philadelphia reviewed at length the literature of this subject, especially Dr. Simon Flexner's work on "Terminal Infections," and reported briefly a case that came under his charge. The patient was man of twenty-six, with marked chronic interstitial nephritis, who came to the hospital showing the signs of pericardial effusion. By aspiration 44 ounces of bloody serum was obtained. At autopsy the bacillus coli communis was obtained, this probably being the infecting agent. The fluoroscope is a valuable diagnostic aid in cases of pericardial effusion.

In the discussion, Dr. A. O. J. Kelly of Philadelphia said that pericardial effusion was not uncommon in cases of chronic interstitial nephritis, but there was a question as to the propriety of calling it a terminal infection. Infection may be the cause of the effusion, or it may come afterwards as a preagonal or postagonal condition. Effusion in these cases is often latent and is not detected unless frequent routine examinations of the chest are made.

Infantile Scurvy.—A case with fracture of the femur and multiple epiphyseal separations in a child a few months of age was reported by Dr. T. J. Elterich of Allegheny. Common symptoms of scurvy were not present, but the diagnosis was made mainly from the swellings and epiphyseal separations. Recovery followed.

Hydrotherapy in Diseases of the Heart.—On this subject an admirable paper was read by Dr. S. Solis Cohen of Philadelphia, who emphasized the point that the relief and cure of some cases of cardiac disease can be carried out at the patient's home by any physician. A trip to European spas is not an essential in many cases. By supplying heat or cold, water may be made to diminish or increase both the vigor and rate of cardiac contractions. A tonic contraction or a passive dilatation of peripheral vessels can be determined to an almost measurable degree of accuracy. Water is used internally and externally in several different ways. Among the best of the latter is the Nauheim bath, which can be prepared at home with the aid of materials easily purchased. Dr. Cohen considers the ice-bag or Leiter's coil placed over the precordium to be the best preventive of cardiac failure in typhoid fever and similar conditions. Their use is much better than the giving of alcohol. One case of typhoid fever now under treatment, a confirmed alcoholic, has had no alcohol during the course of the disease. Hot water should be used first and then quickly cooled with ice. Use at first from 10 to 15 minutes three or four times a day. Use longer if necessary. Get results. For failing compensation in valvular disease the ice-bag is of great value, and also affords diagnostic and prognostic aid. Where myocardial degeneration is hopelessly advanced the application of cold is attended by bad results and cannot be used. If enough good muscle is present to respond the prognosis is more favorable. Hydrotherapy does not cure valve lesions, but it may postpone the necessity for using digitalis or other drugs. The application of cold to the cervical spine is often of more value in functional disturbances of the heart, as in exophthalmic goiter, than its application to the precordium. Water internally for the relief of dropsy may seem paradoxical, but it can be made to produce this effect by allowing the patient to drink only at intervals of four to six hours, and then fully satisfying his thirst. Hypodermoclysis of small amounts slowly given may produce the same effect.

Election of Officers.—The committee on nominations recommended the following persons as officers for the ensuing year, and they were unanimously elected: President, Dr. William M. Welch of Philadelphia. Vice-Presidents—First, Dr. H. H. Herbst of Allentown; Second, Dr. G. F. Bell of Newberry; Third, Dr. G. W. McNeal of Allegheny; Fourth, Dr. S. P. Heilman of Lebanon. Secretary, Dr. C. L. Stevens of Athens; Assistant Secretary, Dr. T. B. Appel of Lancaster; Treasurer, Dr. G. W. Wagoner of Johnstown. The next annual meeting will be held at York.

Appropriate resolutions on the death of Dr. W. Murray Weidman of Reading were presented by a special committee, and adopted. Dr. Weidman was an active worker in the society, a successful physician and a whole-souled, genial man. The society keenly feels his loss. Tributes to his memory were paid by Drs. Guthrie, Cohen and Bishop.

Address in Hygiene.—This address was delivered by Dr. Edgar M. Green of Easton, who discussed the care of tuberculous patients, the water-supply, the handling of smallpox and the teaching of hygiene in schools. The renewed interest shown in the case of the victims of tuberculosis in Pennsylvania is one of the strongest evidences of the advance in hygiene in the State. Much is yet to be done, especially in the proper disinfection of sputum. Lysol or formaldehyd in ten per cent. solutions is effective. Corrosive sublimate solutions must be at least 5 to 1,000, and must be in contact with dried bacilli for hours. Contraction of tuberculosis from railway carriages is a much greater danger in Europe than in this country. Regarding the water-supply of cities, the conditions remain practically the same. Under present laws municipalities have very few rights, and pollution of streams is easily possible. The general public still needs education regarding smallpox. The compulsory school and the law requiring vaccination of school children are conflicting. If a child be not vaccinated it is kept out of school, thus rendering inoperable the compulsory school law. A general compulsory vaccination law is needed. The law requiring the teaching of hygiene in the public and high schools every day causes a repetition of this subject which becomes very distasteful to the pupil during his school-life. The law should be modified and a higher grade of books supplied.

The Unity and Intercommunicability of Human and Bovine Tuberculosis.—Dr. M. P. Ravenel of Philadelphia gave a brief summary of experiments made to determine the truth of the above statement. These experiments have proven indisputably that this is true, and that Koch's postulates were wrong. The claim of the unity of the disease in man and animals is based on several points: (1) A study of cultures of each, old tubes of which cannot be differentiated from each other; (2) the changing of human tubercle bacilli into the bovine form by passing them through several series of animals, this change in form being true as regards cultural characteristics, morphology and pathogenicity for small animals; (3) the gross pathology of the lesions, and (4) their pathological histology. The intercommunicability of the human and bovine varieties was proven by transmission from man to animals by means of ingesta of sputum and also by inoculation. Of the latter Dr. Ravenel has four cases. The human bacillus from mesenteric glands, when introduced into cattle intraperitoneally or intravenously, caused their death in from 17 to 27 days. An interesting point brought out by experiments with animals, and also by human postmortems, is that the tubercle bacillus can pass through the intestinal tract of man and set up its characteristic changes in the tissues of the body without having left a trace of its entrance in this manner. Experiments with swine demonstrated that the tonsils may be the point of entrance for the bacilli. Dr. Ravenel closed by saying that the chief means of the transmission of tuberculosis is the sputum of affected persons, but that children should also be protected from infection by the destruction of all tuberculous cattle.

Recent Discoveries in the Domain of Etiology.—Dr. D. H. Bergey of Philadelphia reviewed the progress of bacteriology in the determination of the causes of disease. Late investigations point to the probability that some of the infectious diseases, of which the causes are yet unknown, may be due to the presence of animal parasites. His own investigations have convinced him that variola is thus caused. The parasite belongs to the class of sporozoa. Vaccinia is caused by the same parasite in a modified form. Experiments are not yet completed, but have shown that it has both sexual and asexual modes of development.

The Treatment of Infectious Diseases.—Dr. Adolph Koenig of Pittsburg said that in all infections there were fundamental conditions inseparable from the disease, and there should be like principles in treatment. He thinks that treatment of infections diseases has not advanced equally with our knowledge of such diseases, treatment being yet largely symptomatic. The cause, where known, or the principal effect of the cause, should be aimed at. Hence the elimination of toxins is the great desideratum in these conditions. The purpose of the paper was not to enter into details, the only point made in that line being the value of water given internally in large quantities during the course of scarlatina and similar diseases. Aerated distilled water is his preference. More powerful diuretics may also be employed.

In the discussion, Dr. Seneca Egbert of Philadelphia said that physicians had been taught of late years the impossibility of disinfecting the intestinal tract in typhoid fever and other diseases, until many had gone to the opposite extreme of not making the attempt. In all cases antiseptics should be employed to keep the infection at the minimum point, whatever that may be.

Typhoid Fever Epidemics Caused by Infected Water and Milk.—Dr. J. C. Gable of York presented this paper. It was a description of the conditions which made possible the epidemic of 453 cases of typhoid in York a few years since.

An Outbreak of Smallpox.—Dr. A. R. Craig of Columbia said there was yet much to do in getting the masses to realize the efficiency of vaccination. Even the authorities of towns do not appreciate this fact, as will be found to the cost of many when cold weather increases the existing smallpox. An outbreak of smallpox in Columbia, where there is no hospital for contagious diseases, was combated with quarantine, disinfection, etc., because vaccination was expensive and met with opposition. The disease continued to spread until the authorities, finally forced to do so by the united medical profession of the town, ordered compulsory vaccination. The epidemic was wiped out at a cost from that time of $1,333. Previous to this the town had spent $6,240 in ineffective measures. The writer stated that it would be well if the State or local boards of health were empowered to appropriate at once in these cases money enough for properly carrying on measures to suppress the disease until the civil authorities awoke to the situation.

In discussing this paper, Dr. Jay F. Schamberg gave the experience of Philadelphia in the matter of quarantine. At the beginning of the present epidemic of smallpox routine quarantine of from 15 to 18 days was imposed at each house where the disease was discovered. This was not found effective and was seen to have several disadvantages: (1) Exposed persons in these houses would escape before the quarantine was placed, and would thus spread the disease; (2) there was lessened incentive for patients to go to hospitals; (3) the method was very expensive. Later a quarantine of two or three days, with disinfection, vaccination and removal of the patient to the hospital was adopted with much better results.

Dr. R. H. Gibbons of Scranton said that medical students should have instilled into their minds the duty of vaccinating children. The operation should be taught by the chairs of surgery, medicine, pediatrics and obstetrics. No student should be allowed to attend a case of labor without seeing that the child was afterward vaccinated.

Urinalysis in 100 Cases of Smallpox.—This paper by Drs. W. M. Welch and Jay F. Schamberg of Philadelphia was read by the latter. It was based on a study of 128 cases, 1,088 specimens of urine being examined. The results occasioned no surprise, as it was only reasonable to expect some kidney affection in a disease where, by actual calculation, there were from 30,000 to 40,000 pustules on the body, and the formation of probably five quars of pus. Albumin was found in the urine in 66 per cent. of cases of variola and in 60 per cent. of cases of varioloid. In from 28 per cent. to 50 per cent. casts were present. The percentage of cases showing casts and albumin was much higher in the series of fatal cases, 30 of 38 having albumin, and 19 of 38 having casts. Albumin generally appears about the fifth day of the eruption, but both albumin and casts may appear late in the disease. The urine from these patients often presents marked differences from day to day.

Food-Adulterations.—This was the subject of an interesting address given Wednesday evening by Hon. John Hamilton, Secretary of Agriculture of Pennsylvania, who stated that food-adulteration had really begun and proceeded hand in hand with civilization. Enough statistics were given to show the actual state of this deception in Pennsylvania. During the two and a half years ending July 1, 1902, under the auspices of the Dairy and Food Department 3,023 samples of butter were analyzed, only 103 of them being on the market as oleomargarin, and only 61 as butterin. Of these samples 1,019 were found to be butter, 164 renovated butter, and 1,840 oleomargarin. During the same period 1,369 articles of food, including nearly every solid and liquid form, were analyzed, and 783 of them found to be adulterated. More work in this line has been done in Pennsylvania than in any other three States. Four persons are responsible for the control of the food-supply—the manufacturer, the jobber, the retailer and the cook (or the cook's employer). The kitchen causes much disease. Secretary Hamilton believes that the company kitchens, or rather the sinks, are responsible for much of the sickness in soldiers' camps. He would abolish these kitchens, have men mess in fours, use no dishes, eat with a combination knife, fork and spoon out of the vessel in which the food is cooked, and disinfect this vessel by turning it bottom side up over the fire after each using. Physicians must reform kitchen affairs. The furnishing of pure food depends on two agencies—the law and the work of practising physicians. It was stated that many cases brought to court had been lost by the Department because of the conflicting testimony of physicians. Some would testify that certain substances were injurious to health. Others would give an opposite opinion. And the jury every time would believe the latter. The great responsibility of the State Medical Society in this matter was pointed out, and its earnest cooperation solicited.

THIRD DAY—SEPTEMBER 18.

Infant-Feeding.—In this paper Dr. Adelaide M. Underwood of Lancaster gave very careful instructions regarding the care of infants from birth, their hygienic management, bathing, etc., being detailed. Where mothers are unable to supply nourishment wet-nurses should be secured if possible, their selection being governed by certain rules that should be closely adhered to. The next substitute is artificial feeding, which was considered at some length.

Home Modification of Milk.—Dr. Alfred Hand, Jr., of Philadelphia read an excellent paper on this subject. Many difficulties met with in infant-feeding may be avoided by studying the needs of each infant individually instead of following a routine method. Good clean milk can now be obtained in most places at a cost of about 12 cents per quart, and this can be modified according to the percentages of fat, sugar and proteids desired. Actual estimation of the fat should be made at intervals, especially when the child fails to make a weekly gain. Dr. Hand prefers sterilization to Pasteurization when heat is necessary. Very satisfactory results were reported, the cases being illustrated by weight charts.

Address in Surgery.—Dr. George D. Nutt of Williamsport gave a cursory review of the progress made in surgery during the past year, stating that no important discovery had been made, advances being more along the line of improvement in technic, preparation of patients, occlusion of vessels without the use of ligatures, the administration of anesthetics, etc. The practice of surgeons (especially leaders or teachers) in publishing new operations or modifications of old ones before they have been fully tried by experience was strongly condemned. The numbers of articles on leading subjects published during the year were given, among them being 158 on carcinoma and 260 on appendicitis. Despite the latter, the question of appendicitis remains as unsettled and indefinite as it was five years ago, there being no common ground of agreement. He believes that every case must be taken by itself and treated as the observer's experience dictates. The resistance of the organism in defending the abdominal cavity from infection must not be forgotten. A point emphasized was the unreliability of statistics. Dr. Nutt makes three classes of cases: (1) Light attacks; (2) explosive attacks, with pus formation; (3) where general peritonitis is present. This last is more than appendicitis, and is in a class by itself, the mortality being from 40 to 50 per cent. The first two can be classed together with a mortality of not over six per cent.

Carcinoma of the Mammary Gland.—Dr. William L. Rodman of Philadelphia emphasized several points in speaking on this subject: (1) The necessity of recognizing the anatomy of the lymphatics of the breast—of which there are least five sets—since metastasis internally or externally, as the growth is in the inner or outer half of the breast, bulging of the sternum in some cases, more rapid progress in some, etc., are thus explained; (2) the importance of early diagnosis, of value in making which are (a) age of the patient, 70 per cent. of cases occurring after fortieth year, (b) locality, malignant tumors generally being in the outer half, (c) fixing of tumor, (d) dimpling of skin, (e) lateness and unreliability of pain, (f) retraction of nipple, occurring in only 52 per cent; (3) prognosis, showing the disease to be more quickly fatal in young persons, and when situated in inner half of breast and when also in the right breast; (4) treatment, in which Halsted's operation is the best, with the addition of Warren's expedient for covering the large surface in some cases; (5) ultimate results, wherein 50 per cent. should be cured, while, as the surgeon sees them, not over 33 per cent. of cures can be expected, though all that can be done in the way of operation is being done now, and improvement must come from early diagnosis. Every tumor of the breast, Dr. Rodman thinks, should be operated upon early. Diagonsis by frozen sections will aid in deciding what to do in doubtful cases.

In the discussion, Dr. Henry Beates, Jr., of Philadelphia said that the remarks made concerning the lymphatic systems of the breast emphasized his contention that a course of anatomy as applied to medicine should be in the curriculum of medical schools. Not surgical or topographical, but medical anatomy is meant by this statement.

Empyema: A New Method of Drainage.—Dr. Leon Brinkman of Philadelphia described this method, which is a modification of the one originally suggested by Skene, and does away with the necessity of drainage-tubes. A portion of one or more ribs is excised without going through the pleura, and that membrane is then stitched to the skin. Convalescence is much shortened by this method. Dr. Brinkman has employed it in 22 cases, 21 of which recovered. Chloroform anesthesia is employed for the operation.

Polypoid Growths in Childhood versus Rectal Prolapse.—Dr. Lewis H. Adler, Jr., of Philadelphia spoke of the mistakes in diagnosis between these two conditions. He finds nearly double the number of cases of polypus as compared with prolapse. Many cases go on to spontaneous cure. Diagnosis is usually easy if an examination is made. Treatment is removal. The clamp and cautery may be used, but will be found rather formidable. The simplest method is torsion. When the polypus is sessile ligatures must be applied,

Treatment of Spina Bifida.—Dr. William V. Laws of Philadelphia reported two cases of spina bifida operated upon, one being successful. It is best to apply the rules for dealing with hernia in these cases. No good results from injection of fluids have been seen by him. Nichol's is the best operative procedure. The fatal case reported was a child of ten weeks, the sac containing many nerves. The other was seven months of age, the sac being as large as the child's head, but containing only one nerve. This was loosed and the sac ligated and cut. Recovery was complete.

In the discussion, Dr. Rodman of Philadelphia said he had no faith in injection methods. Diagnosis is usually easy, but one condition may puzzle the best surgeon. The lumbosacral region is a favorite location of lipomata, which are easily diagnosed in pure cases. When a mass of fat overlies a small spina bifida the latter may not be recognized until cut into.

Gunshot Wounds of the Stomach, Liver, Lungs and Head; Operation; Recovery.—Dr. G. W. Wagoner of Johnstown reported a rare case. The man was a foreigner, and, in deference to his wishes to see a priest, some three hours elapsed after the injuries before operation. Two perforations of the stomach were found, on the anterior and posterior surfaces, the abdominal cavity was full of blood which came from a perforation in the right lobe of the liver, and the lower lobe of the right lung was perforated. The liver was packed with gauze, and finally, after several attempts, the hemorrhage was controlled. The wound of the lung was packed, the wounds of the stomach closed, and the man returned to the ward. Thirty-six hours after operation abdominal distention began, and magnesium salts were given hourly with no effect. An alum enema proved effective in relieving the condition. No nourishment was given by the mouth for four days. On the sixth day the packing was removed, no hemorrhage resulting. On the 24th day the patient was anesthetized, and some necrotic bone was removed from around the frontal sinus where one bullet had struck. This was well borne, and the patient made a good recovery. Points of interest were the use of equal parts of hydrogen peroxid and glycerin to soften the packing for some time before it was removed; the effect of the alum enemas, and the stimulating effects of enemas of coffee.

In the discussion, Dr. Estes of South Bethlehem reported a case of attempted suicide in which a load of shot had passed through the stomach and spleen and riddled the left kidney, which was removed. Recovery followed. This he thinks was due to drainage at the most dependent point.

Dr. La Place of Philadelphia emphasized the importance of susceptibility to infection, which is really the deciding point in these cases. Patients having great wounds recover, and in other cases a slight lesion causes death. The mechanical principles of surgery may not be to blame in many of these fatal cases.

Electrothermic Hemostasis.—D. A. J. Downes of Philadelphia exhibited improved instruments, and described the technic of this method of controlling hemorrhage. It still gives good results in his hands, and is strongly recommended for general use.

Roentgen-Ray Treatment of Cancer.—Dr. Charles L. Leonard of Philadelphia spoke of the use of this agent in the treatment of inoperable malignant growths, the only class of cases in which he employs it. The combination of operation and the use of the X-ray is probably the best method in many cases. The results obtained may not be called cures as yet, owing to the time; but the improvement has been very great. The effect of the X-ray upon normal tissue is both stimulating and alterative. On tissues of low vitality it is alterative. Before healing in lupus and rodent-ulcer there is a breaking down of the tissues, and there may be a retrograde metamorphosis ending in fatty degeneration. He thinks the X-ray is a medium for transmission of electricity. A reaction of the tissues is not necessary for therapeutic effect.

Report in Cases of Malignant Disease Treated by the X-Ray.—Dr. W. S. Newcomet of Philadelphia reported the cure of an epithelioma of the orbit of 22 years' duration. In several inoperable recurrent carcinomas of the breast great improvement has been noted.

In the discussion on the X-ray, Dr. Guthrie of Wilkesbarre said that efforts should be made by physicians to combat the growing popular belief in the efficacy of the X-ray. The laity will depend too much on its influence, and will refuse operation in cases that absolutely demand it.

Dr. Shoemaker of Philadelphia said that he does not treat cases with the X-ray, but sends them to men who know how to use it. There should be an expert in the use of this agent in each locality to whom can be sent cases for treatment.

Dr. Thompson of Scranton reported the results of Dr. Prices's work in that city with sarcomata. A sarcoma of the neck, three times recurrent, was removed and the surrounding enlarged glands exposed to the X-ray. They disappeared, and cure is apparently perfect. The same course was pursued with two sarcomas of the jaw. Neither recurred. In one other recurrent case the X-ray had no effect except to increase the pain.

In closing, Dr. Leonard said that the best results appear to be in cases of simple sarcoma and epithelioma. In one recurrent lymphosarcoma of the neck the X-ray seemed to stimulate the growth, which progressed very rapidly.

Penetrating Wound of the Heart.—This case, occurring in September, was reported by Dr. John H. Gibbon of Philadelphia, the patient a man twenty-five, who had received a stab-wound of the chest, and in whom the symptoms permitted the diagnosis of penetration of the heart without injury of the pleura. The question of taking time to fully sterilize the hands and the patient in such a case came up, but the usual time was taken. Operation showed a wound of the heart, which was closed by the end of a finger while a costal cartilage was resected. A suture to draw the wound into view and also to stop hemorrhage was passed. The heart, which was very irregular and feeble, then ceased beating, and efforts to cause it to resume beating were futile. Autopsy showed the wound to be in the right ventricle, below the pulmonary orifice.

Address in Obstetrics.—This address was delivered by Dr. J. M. Baldy of Philadelphia, who spoke first of the trend of general surgery towards usurping the place of the gynecologist. This should not be, as very many general surgeons have not grasped the principles of gynecology. They claim to be able to do these operations because they do not differ from other surgery which is known by them. The very fact of their claiming that all is known, is proof that gynecological patients should not be entrusted to them. Cancer of the uterus was considered at some length. The various theories of its origin were discussed, and the following conclusions were reached: We do not know what cancer is; we do not know the cause of cancer; we do not know a cure for cancer. Any case operated upon cannot be called a cure under six years. Dr. Baldy sees no reason for changing his statement of last year, that only five per cent. of cases of cancer of the cervix are cured. With our present knowledge of cancer, early diagnosis is the only hope of cure. He looks to the pathologist as the one to determine the cause of cancer.

Abdominal Extra-Uterine Pregnancy at Full Term.—Dr. W. L. Estes of South Bethlehem reported this case and exhibited the child, a healthy infant some months of age. The patient was a woman of thirty. Six weeks after becoming pregnant she had some abdominal pain, which lasted for a short time and then disappeared, the pregnancy advancing without untoward symptoms. A short time after term the woman, while reaching, felt something give way in her abdomen. When she was brought to the hospital the child was found to occupy a transverse position. Laparotomy showed the sac attached to the colon and partly behind the small intestines, having ruptured on the left side. The child was delivered and did well, the mother dying later of sepsis. The condition of the broad ligaments was such as to prove that the pregnancy had been tubal, and rupture had allowed the fetus to escape into the abdominal cavity. The broad ligaments were free, and a small depressed scar was present about the middle of the left tube. Dr. Estes also showed an ovum from another case. This had been found free in the abdominal cavity after rupture of a tube. These cases prove the fallacy of the old teaching that such pregnancies must be intraligamentary.

Incision in Appendicitis.—Dr. R. H. Gibbons of Scranton read this paper, which was a minute anatomical description of the method advocated by McBurney and Wier. He commends it highly as preventing the occurrence of hernia. The incision can be readily enlarged if necessary, in spite of contrary statements.

In the discussion, Dr. La Place of Philadelphia said that the McBurney incision would do in cases that had no pus. But it often happens that there is pus when not suspected. In that case the muscles can be cut through. The incision then, depending on the condition present, is made over the appendix or over the abscess. In the latter cases hernia must always be a secondary consideration.

Dr. M. Price of Philadelphia said that in operating for appendicitis the question of moment was not the incision, but the treatment to be instituted after the incision is made. There is danger of hernia through any incision when drainage is employed, and this has been necessary in all but five or six of 200 cases. Yet only three or four have returned with a hernia.

Dr. Noble of Philadelphia prefers the incision through the rectus muscle, as hernias are less apt to occur (he has never seen one), and would be easier to cure if they did occur.

Danger Point in Appendicitis.—Dr. Ernest La Place of Philadelphia said that the danger in this disease begins with its very inception. It is very uncertain from the location of the appendix; because abdominal pain is often not referred to the point from which it originates; because there is no germ present in the foulest case that has not be present from the beginning. The virulence of germs depends upon the susceptibility of the patient. No one can fortell the degree of this. Hence appendicitis is the most anomalous of all diseases. Medical cures are not permanent cures. Operation is the only remedy for the disease. A point to be remembered is that in every fatal case there was a time when operation would have saved the patient's life. In discussion, Dr. Baldy started an animated discussion by saying that such remarks were nonsense; appendicitis is a perfectly plain disease; many cases recover without operation, and it is safe to wait for a time in such cases before deciding on operation. In many cases we can tell absolutely whether suppuration is going to follow or not.

Exceptions to this statement were taken by several speakers, who regarded this as very dangerous teaching.

The Role of Cystoscope.—Dr. C. P. Noble of Philadelphia pointed out in a general way the benefits derived from the use of the cystoscope. Several of these instruments, with batteries, were shown to demonstrate their simplicity. By their use former views regarding inflammation of the bladder have been changed, the vesicle of the ureter being the only part involved in some of these cases. Astringent solutions can be applied directly to the seats of lesion by means of this instrument, tumors and stone of the bladder located, and disease of the bladder differentiated from those of the ureter and kidney. Four illustrative cases were detailed.

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